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*With the Compliments of the Chairman and Deputy Chairmen of the East India Company.*

# REPORTS

ON THE

## EPIDEMIC CHOLERA

WHICH HAS RAGED

THROUGHOUT

HINDOSTAN AND THE PENINSULA OF INDIA,

SINCE AUGUST 1817.

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PUBLISHED UNDER THE AUTHORITY OF GOVERNMENT,

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1819.



STUDY

THE HISTORY OF THE

REPUBLIC OF THE UNITED STATES

OF AMERICA

BY



STAMPED



1875

1875

## ERRATA.

- PAGE 30 line 7 from bottom, for *every* read *very*  
35 line 6—top, for *against* read *again*  
60 Signature, for *Milwood* read *Milward*  
130 line 12 from bottom, for *as* read *at*  
Letter No. 34 insert *Signature R. Wallace*  
141 line 7 from top, for *parvagum* read  
*par vagum*  
155 Signature, for S. Coats read T. Coats  
156 line 5 from top, for *is* read *in*  
175 first line, for *September* read *August*.

## IN DEDICATION.

Page II, line 6, for *extends* read *extended*.

# ATTEST

Witness my hand and seal of the County of ... State of ...  
this ... day of ... 19...  
...  
...  
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...  
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...  
...



TO THE RIGHT HONORABLE  
**SIR EVAN NEPEAN, BART.**

**GOVERNOR OF BOMBAY,**

*One of His Majesty's most Honorable*

*Privy Council, &c. &c. &c.*



**SIR,**

**WE** take the liberty of  
prefixing your name to the  
following reports, because  
they belong to you by a dou-  
ble title. They relate to the  
measures



measures taken, under your sanction, to check a most singular and alarming disease, which after sweeping the provinces of Hindostan, extends into those under your government; and without the prompt, liberal and, we may say, unlimited powers which you bestowed on the Medical Board, for the purpose of arresting the progress of the evil, the best exertions of the medical establishment, must have been comparatively feeble and inefficient. The  
many

many thousands who owe their lives to the extent and efficacy of those measures, owe them to you.

You have seen the British dominions in this country enlarged in territory, in revenue, in wealth and in power far beyond the most sanguine hopes that could have been entertained, when you landed in India: and in accomplishing these objects, the aid derived from your government has confessedly, most essentially contributed. These are noble and generous sources of



pride, even though necessarily attended with much immediate misery and bloodshed. But splendid as they are, they will not, we think, lessen the feelings of pure and unmingled gratification which you will derive from having been the means of saving so many human lives, of alleviating so much human suffering. These local and domestic occurrences may find no place in the page of history: but you will find a humbler though a rich reward in

the

DEDICATION.

the pleasing consciousness of  
having done good.

We have the honour  
to remain,

Sir,

Your most  
Obdt. Servants,

**R. STEUART,**  
**B. PHILIPPS.**

*Bombay, 24th March 1819.*





## PREFACE.

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**T**H E following reports contain an account of one of the most formidable and fatal diseases that has visited India in modern times, and which has raged with unabated fury in one part or another of Bengal, Hindustan and the Peninsula ever since the middle of August 1817, and still continues its progress as if every province were destined to experience its baneful influence.

It is proper to state the circumstances under which these reports have been offered to the public, and it is hoped that it will be accepted as a sufficient apology to the gentlemen who contributed to give the information they contain, for publishing what they may consider crude and hastily prepared notices, to assure them that had the delay which has taken place in their progress

progress through the press been foreseen, they should have had an opportunity of revising them; this circumstance however it is believed, does in no degree diminish their value; they may be considered as notes taken at the side of the sick-bed, containing a faithful record of every occurrence as it took place, and in a state of mind anxiously watching the chain of symptoms and the effect of remedies employed, in a disease of which little was known, and the changes so rapid as to require the utmost vigilance on the part of the practitioner. That this has been generally well performed, we presume, will be readily acknowledged, and it will constitute the most acceptable reward of their labours.

When the disease had advanced to the westward as far as Jaulnah, nearly four degrees to the eastward of this place, it became pretty evident that it would continue its course all over the western side of the Peninsula. It then became the duty of the medical board to take such measures as seemed best calculated to resist as far as possible



possible its fatal effects, and amongst others they directed all the medical gentlemen immediately under their control to communicate whatever information they might be able to obtain either by their own experience or otherwise, in regard both to its history and treatment. The mass of information thus collected soon appeared of a nature too interesting both to the medical profession and to the public, to be laid aside as mere official papers; application was therefore made to government for permission to publish it at the public expense, this as might be expected, was immediately complied with in the most liberal manner. It is true that an abridgment of the principal matter contained in these reports might have been easily prepared, but it was judged but fairness to the contributors to adopt the mode that has been pursued, and to arrange them as nearly as possible in the order of their respective dates. And as an able letter written by Mr. Corbyn of the Bengal Establishment, who was in charge of the native general hospital of one of the divisions of the Bengal army, when the disease

was

was raging with great violence, has been frequently mentioned in the reports, it has been thought proper to subjoin it as an appendix.

As the progress of this disease throughout India forms a very important part of its history, we shall as far as we are enabled, by our information, which is far from complete, trace it from the place where it seems first to have broken out, to this Island, where it first appeared in August last, comprising a period of about one year from its commencement. In doing this we are happy to avail ourselves of a letter from the medical Board of Bengal \* dated 4th of Sept. last, from which we shall take the liberty to quote largely, as it contains much information on this part of the subject and also a comprehensive and perspicuous view of the chain of symptoms and sufferings in this singular disease. It is indeed to be

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\* When the disease had reached Bombay, Dr. Meek, Superintending Surgeon of Guzerat, from a laudable desire of obtaining all the information possible with regard to its treatment, applied to the medical board of Bengal, the answer to this contained the information alluded to, which appeared so interesting that we are confident we need offer no apology for its publication.



be regretted that the dates of the appearance of the disease at the different places in Bengal are not mentioned, which would enable us to compare the progress of the disease in respect to time and distance, in those provinces, with what we have observed pretty uniformly to take place on this side of India; it is however to be hoped that this information will yet be supplied by those gentlemen who have had opportunities of making observations and collecting facts at the stations alluded to. It seems however sufficiently evident from this extract that the appearance of the disease at distant stations was by no means simultaneous, and it is most likely that it will be found that the times will be in some regular ratio to the distance; thus it appears to have taken nearly ten days to reach Calcutta from Jessore, a distance about 100 miles.

“The Cholera first appeared in August of last year (1817) in Zila Jessore; situated about a hundred miles north east of Calcutta. There had been no previous marked peculiarity in the weather. The preceding cold and hot months were no wise different from those of former years; & the rainy  
season



season was proceeding with its wonted regularity. To the authorities on the spot there, the disorder seemed at first to be of a purely local description; and attributable to the intemperate use of rank fish, and bad rice. They were soon undeceived, after nearly depopulating the town of Jessore, it rapidly spread through the adjoining villages; and ran from district to district, until it brought the whole province of Bengal under its influence. It next extended to Behar; and having visited the principal cities west and east of the Ganges, reached the upper provinces. There its progress was more irregular. Benares, Allahabad, Goruckpore, Lucknow, Cawnpore, and the more populous towns in their vicinity, were affected nearly in the regular course of time. But it was otherwise in more thinly peopled portions of the country. The disease would sometimes take a complete circle round a village, and leaving it untouched, pass on, as if it were about wholly to depart from the district. Then, after a lapse of weeks, or even months, it would suddenly return and, scarcely reappearing in the parts which had already undergone its ravages, would nearly depopulate the spot, that had so lately congratulated itself on its escape. Sometimes after running a long course on one side of the Ganges, it would, as if arrested by some unknown agent, at once stop; and taking a rapid sweep across the river, lay all waste on the opposite bank. It rarely, however, failed to return to the tract, which it had previously left. After leaving a district or town, it sometimes revisited it, but in such cases the second attacks were milder; and more readily subdued by medicine; than those in the primary visitation.

The disorder shewed itself in Calcutta in the first week

of

of September. Few were seized in the beginning; but of those few scarcely one survived. Each successive week added strength to the malady; and more extended influence to its operation. From January to the end of May, it may be said to have been at its full height; and during the whole of that period, the deaths in the city seldom by the police returns fell short of 200 a week.

It in turn, attacked every division, and almost every corps in the army. Of its fatal effects amongst the troops, a melancholy and signal instance is afforded in the history of its appearance in the centre division of the field army, under the personal command of the Most Noble the Commander in Chief. There it commenced its attack on the 18th or 19th of November; was at its utmost violence for four or five days; and finally withdrew in the first days of December. The division consisted of less than ten thousand fighting men; and the deaths within twelve days amounted, at the very lowest estimate, to three thousand; according to others to five, and even eight thousand. The average loss of rank and file was between eighty and ninety men a battalion.

The Epidemick was long in crossing the Bundelkund and Rewa Hills. It began to shew itself at Jubbulpore on the 10th of April; prevailed generally amidst the corps posted there, at Mundelah, Saugor, and other subordinate stations, to the 21st; and nearly disappeared before the end of the month. Here its influence was singularly irregular. In the same camp and under circumstances precisely similar; some corps were entirely exempt; others had a few mild cases only; and others again suffered very severely. The same irregularity held in different descriptions and classes of troops. The disease did not reach Colonel Adams's camp  
till



till the 29th of May. It raged very violently during four or five days; and continued its operations in a desultory manner till the middle of the succeeding month. In Bengal, and the middle provinces, it may now perhaps be considered as nearly at an end. Cases no doubt still now and then occur in Calcutta, and its vicinity; but these are rare; and should rather be reckoned sporadic, than as proofs of the subsistence of the epidemic. The returns from the different divisions of the army, now leave the head of Cholera Morbus, in most cases, blank; and the reports of the civil Surgeons are equally decisive of its general disappearance. At Delhi, Futligur, and others of the more northern stations, whither the disease was long in spreading, it is still, the board believe, in full force, and producing the most alarming mortality."

Colonel Adams's force was on the 29th or 30th of May in the neighbourhood of Nagpour, where the disease had raged for some days. We do not know the exact period at which it appeared at Jaulnah, but believe it to have been the latter end of June or beginning of July, immediately after the arrival of a detachment from Nagpour. After passing over a space of 200 or 220 miles, after visiting Aurangabad and Amednuggur in its course, it reached Seroor, a distance of 150 miles, on the 18th or 19th of July. Towards the latter  
end

end of the same month it appeared in the city of Poona, although the troops encamped in its neighbourhood continued healthy for some time after. On the 6th of August it broke out with great violence at Panwell, a considerable village on the main line of communication between Poona and Bombay, separated from the latter by an arm of the sea, and distant about 15 or 20 miles; but between which a pretty constant communication is kept up by means of boats. On 9th or 10th of the same month the first case appeared on this Island, and, as appears by Doctor Taylor's report, could be traced to a man who had arrived from Panwell the same day; it is also evident by Dr. Jukes's report that it spread north and south along the sea coast from the same place, and that it was imported to a village in the neighbourhood of Tannah on the island of Salsett, distant from this place about 20 miles, by a detachment of troops that escorted a state prisoner to that garrison from Panwell. The disease did not break out at Mahim, on the extremity of this island distant



tant only 5 or 6 miles from the principal native town of Bombay, until it had been established in the latter: it then gradually spread over the western side of the island of Salsett, through which the road from Bombay to Surat and the northern countries lies, and by which during the south west monsoon, is the principal line of communication. By the observation of some individuals \* who, aware of the danger of the malady, and with the humane view of relieving the sufferings which it inevitably produced, carefully watched its progress, we are enabled to trace the disease as if creeping along from village to village on that island precisely in the same way, that is, by the arrival of people affected with the disease from places where it was known to prevail; and we are assured that there are some small villages on that island, which from want of this sort of communication, or from some other cause, have after a lapse of

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\* Amongst those, we have great pleasure in mentioning the name of Ensign W. A. Tate of the corps of Engineers, stationed on Salsett; who, among other arduous duties, paid the most unremitting attention to alleviate the sufferings of a large portion of the population, and to whose humane exertions, some thousands of the inhabitants owe their preservation.



of four months, hitherto escaped entirely.

From the foregoing detail, which to some may appear too minute, we are disposed to conclude that this epidemic is not only different in its nature from those that have hitherto been observed, but that it may be said to stand alone, in regard to some of the more essential characters which usually distinguish those diseases.

In the first place, it has prevailed in degree, equally violent at all seasons of the year; in regard to temperature, from 40 or 50 degrees of Fahrenheit to 90 or 100; in regard to moisture, during the continuance of almost incessant rain for months, to that dry state of the atmosphere which scarcely leaves a vestige of vegetation on the surface of the earth. Secondly, although what has been adduced may not appear to some to be sufficient evidence of the fact, it appears to us incontrovertible, that it is capable of being transported from one place to another as in cases of ordinary contagion or infection, and also to possess the power of propagating itself by the same means

means that acknowledged contagions do, that is, by the acquisition of fresh materials with which to assimilate, at the same time perhaps, subject to particular laws, with which we may never become acquainted. Aware however of the doubtful nature of the ground which we tread, amidst the contrary opinions that have been advanced on this subject, we shall content ourselves with stating a few facts, which have been supplied by gentlemen whose reports have been already printed, and which might be increased far beyond the limits to which we think it necessary to confine ourselves. In October last, when the disease had almost disappeared at Tannah, the attention of Mr. Jukes was called to a case that had appeared in one of the apartments of the barracks of that fort appropriated to European troops; this owing to too late application for medical aid, soon terminated fatally; another case occurred a few hours afterwards, the subject of which was saved with much difficulty and danger, and in the course of 6 succeeding days no less than 9 cases occurred



curred in the same apartment. The curiosity of Mr. Jukes was naturally excited to ascertain under what circumstances so much disease was produced, and on examination, the ward appeared to be both badly ventilated and too much crowded with men; the place was immediately emptied, scoured and fumigated, after which no other case occurred. Since the middle of December when we had flattered ourselves that the disease was vanishing, as the cold season advanced, the number of cases considerably increased in this Island, Salsett & the Conkan, & consequently excited much alarm; in some instances these cases have been confined to particular spots, and sometimes to particular houses, where the disease has attacked and destroyed in succession whole families, consisting of three, four, and five persons, while in others only a single case or at most very few have occurred. We are utterly ignorant of any local circumstances to which such a change can be ascribed, unless by supposing that a diminution of temperature, together with exposure



posure, may have called into action some latent remains of an active poison ; otherwise it seems difficult to reconcile those facts with what is observed in ordinary epidemics.

It will be observed that Mr. Jukes in his report, remarks that the disease as it first appeared at Tannah, did not go through families when one had become affected ; he has since seen sufficient reason to alter his opinion in regard to that particular ; and we think that we have observed in several instances, that the disease has shewn a greater tendency to spread, where the first attacks have proceeded in their course to a fatal termination, which they invariably do when not counteracted by medicine. How far the same thing has been observed to happen in other epidemics we cannot determine.

We shall now proceed to describe the disease and the symptoms that accompany it, which we cannot do better than in the words of the medical board of Bengal ; after which we shall state the few discrepancies that have been remarked there, compared to the general appearance of the disease



disease on this side of India, and which seem to be connected with local causes, rather than establishing any difference in its nature: we may premise that the names *Cholera Morbus*, *Cholera Spasmodica* and *Mort de Chien* which it has received, apparently by common consent, seem equally inapplicable, in so far as a name can convey any idea of a disease.

“ Having thus given a rapid, and imperfect sketch of the history of the epidemic, the board should now proceed to detail the symptoms, which attended its attack. This part of their task they will not find it difficult to accomplish. The leading appearances of this most fatal malady were but too well marked on their approach, and subsequent progress; and amongst the myriads, who were attacked, exhibited perhaps less variety and fewer discrepancies, than characterise the operation of almost any other disease to which the human body is subject. The healthy and unhealthy; the strong and feeble; Europeans and Natives; the Mussulman and Hindoo; the old and young of both sexes, and of every temperament and condition; were alike within its influence.

The attack was generally ushered in by sense of weakness, trembling, giddiness, nausea, violent retching, vomiting and purging of a watery, starchy, whey coloured, or greenish fluid. These symptoms were accompanied, or quickly followed by severe cramps; generally beginning in the fingers and toes, and thence extending to the wrists and fore arms, calves of the legs, thighs, abdomen, and lower part of the thorax.



thorax. These were soon succeeded by pain; constriction; and oppression of stomach, and pericardium; great sense of internal heat; inordinate thirst; and incessant calls for cold water, which was no sooner swallowed, than rejected, together with a quantity of phlegm, or whitish fluid, like seethings of oatmeal. The action of the heart and arteries now nearly ceased; the pulse either became altogether imperceptible at the wrists, and temples; or so weak as to give to the finger only an indistinct feeling of fluttering. The respiration was laborious and hurried; sometimes with long and frequently broken inspirations. The skin grew cold; clammy; covered with large drops of sweat; dank and disagreeable to the feel; and discoloured of a bluish, purple, or livid hue. There was great and sudden prostration of strength; anguish; and agitation. The countenance became collapsed; the eyes suffused, fixed, and glassy; or heavy, and dull; sunk in their sockets, and surrounded by dark circles; the cheeks and lips livid and blood-less; and the whole surface of the body nearly devoid of feeling. In feeble habits, where the attack was exceedingly violent, and unresisted by medicine, the scene was soon closed. The circulation and animal heat never returned; the vomiting and purging continued, with thirst and restlessness; the patient became delirious or insensible, with his eyes fixed in a vacant stare; and sunk down in the bed; the spasms increased, generally within four or five hours.

The disease sometimes at once, and as if it were momentarily, seized persons in perfect health; at other times those who had been debilitated by previous bodily ailment; and individuals in the latter predicament generally sunk under the attack. Sometimes, the stomach and bowels were disordered

ordered for some days before the attack ; which would then, in a moment come on in full force, and speedily reduce the patients to extremities.

Such was the general appearance of the disease where it cut off the patient in its earlier stages. The primary symptoms however, in many cases admitted of considerable variety. Sometimes, the sickness and looseness were preceded by spasms. Sometimes, the patient sunk at once after passing off a small quantity of colourless fluid by vomiting and stool. The matter vomited in the early stages was in most cases colourless, or milky ; sometimes it was green. In like manner, the dejections were usually watery and muddy ; sometimes red and bloody ; and in a few cases they consisted of a greenish pulp, like half digested vegetables. In no instance, was feculent matter passed in the commencement of the disease. The cramps usually began in the extremities ; and thence gradually crept to the trunk ; sometimes they were simultaneous in both ; and sometimes the order of succession was reversed ; the abdomen being first affected, and then the hands and feet. These spasms hardly amounted to general convulsion. They seemed rather affections of individual muscles, and of particular sets of fibres of those muscles : causing thrilling and quivering in the affected parts like the flesh of crimped salmon ; and firmly stiffening and contorting the toes and fingers. The patient always complained of pain across the belly ; which was generally painful to the touch, and sometimes hard and drawn back towards the spine. The burning sensation in the stomach and bowels was always present ; and at times extended along the cardia and œsophagus to the throat. The powers of voluntary motion were in every instance impaired ; and the mind obscured. The patient staggered



gered like a drunken man; or fell down like a helpless child. Headach, over one or both eyes, sometimes, but rarely occurred. The pulse, when to be felt, was generally regular, and extremely feeble, sometimes soft; not very quick; usually ranging from 80 to 100. In a few instances, it rose to 140 or 150, shortly before death. Then it was distinct, small, feeble, and irregular. Sometimes very rapid, then slow for one or two beats. The mouth was hot and dry; the tongue parched, and deeply furred, white, yellow, red or brown. The urine at first generally limpid, and freely passed; sometimes scanty, with such difficulty as almost to amount to strangury; and sometimes hardly secreted in any quantity; as if the kidneys had ceased to perform their office. In a few cases, the hands were tremulous. In others the patient declared himself free from pain and uneasiness; when want of pulse, cold skin, and anxiety of features, portended speedy death. The cramp was invariably increased upon moving.

Where the strength of the patient's constitution, or of the curative means administered, were, although inadequate wholly to subdue the disease, sufficient to resist the violence of its onset; nature made various efforts to rally; and held out strong, but fallacious promises of returning health. In such cases, the heat was sometimes wholly, at others partially restored; the chest and abdomen in the latter case becoming warm, whilst the limbs kept deadly cold. The pulse would return; grow moderate and full; the vomiting and cramps disappear; the nausea diminish; and the stools become green, pitchy, and even feculent, and with all these favorable appearances, the patient would suddenly relapse; chills, hiccups, want of sleep, and anxiety would arise; the vomiting, oppression, and insensibility return, and in a few hours terminate in death.

When

When the disorder ran its full course, the following appearances presented themselves.—What may be termed the cold stage, or the state of collapse; usually lasted from twenty four to forty eight hours; and was seldom of more than three complete days' duration. Throughout the first twenty four hours nearly all the symptoms of deadly oppression, the cold skin, feeble pulse, vomiting and purging, cramps, thirst and anguish continued undiminished. When the system shewed symptoms of revival; the vital powers began to rally; the circulation, and heat to be restored; and the spasms and sickness to be considerably diminished. The warmth gradually returned; the pulse rose in strength, and fulness; and then became sharp and sometimes hard. The tongue grew more deeply furred; the thirst continued, with less nausea. The stools were no longer like water; they became first brown and watery; then dark, black, and pitchy; and the bowels during many days continued to discharge immense loads of vitiated bile, until, with returning health, the secretions of the liver and other viscera gradually put on a natural appearance. The fever, which invariably attended this second stage of the disease, may be considered to have been rather the result of nature's effort to recover herself from the rude shock which she had sustained; than as forming any integrant and necessary part of the disorder itself. It partook much of the nature of the common bilious attacks prevalent in these latitudes. There was the hot dry skin; foul, deeply furred, dry, tongue; parched mouth; sick stomach; depraved secretions, and quick variable pulse; sometimes with stupor, delirium, and other marked affections of the brain. When the disorder proved fatal after reaching this stage; the tongue from being cream coloured, grew brown, and sometimes dark; hard, and more deeply furred; the teeth and lips were covered with sordes;  
the



the state of the skin varied, chills alternating with flushes of heat; the pulse became weak and tremulous; catching of the breath; great restlessness, and deep moaning succeeded; and the patient soon sunk, insensible, under the debilitating effects of frequent dark, pitchy, alvine discharges.

Of those who died, it was believed, perhaps rather fancifully, that the bodies sooner underwent putrefaction, than those of persons dying under the ordinary circumstances of mortality. The bodies of those, who had sunk in the earlier stages of the malady, exhibited hardly any unhealthy appearance. Even in them, however, it was observed, that the intestines were paler & more distended with air, than usual; & that the abdomen, upon being laid open, emitted a peculiar offensive odour, wholly different from the usual smell of dead subjects. In the bodies of those, who had lived sometime after the commencement of the attack, the stomach was generally of natural appearance externally. The colour of the intestines varied from deep rose to a dark hue; according as the increased vascular action had been arterial or venous. The stomach on being cut into, was found filled, sometimes with a transparent, a green, or dark flaky fluid. On removing this, it's internal coats in some cases were perfectly healthy; in others, and more generally they were crossed by streaks of a deep red; interspersed with spots of inflammation, made up of tissues of enlarged vessels. This appearance was frequently continued to the duodenum. In a very few cases the whole internal surface of the stomach was covered with coagulable lymph; on removing which, a bloody gelatine was found laid on the interior coat in ridges or elevated streaks. The large intestines were sometimes filled with muddy fluid, sometimes livid, with dark bile, like tar; just as the individual had died.

in



in the earlier or later periods of the attack. In most cases, the liver was enlarged, and gorged with blood. In a few, it was large, soft, light coloured, with greyish spots, and not very turgid. In others again it was collapsed and flaccid. The gall bladder was, without exception, full of dark green or black bile. The spleen and thoracic viscera were in general healthy. The great venous vessels were usually gorged; and in one case the left ventricle of the heart was extremely turgid. The brain was generally of natural appearance. In one or two instances, lymph was effused between its membranes, near the coronal suture, so as to cause extensive adhesions. In other cases, the sinuses, and the veins leading to them, were stuffed with very dark blood."

After the above luminous description, and what will be found in the reports which follow, it appears quite superfluous to enter here into any farther detail of the symptoms of this disease; we shall only therefore mention, that the subsequent fever which it appears has generally accompanied it in Bengal, has been but little if at all observed on this side of India; and as we have before noticed may be owing in a great degree to the more extended influence of those causes which are known to produce the bilious remittent fever as an epidemic in the Bengal provinces than on this side of the Peninsula;

Peninsula; for it can scarcely be supposed that a disease, so uniform in its attack and in its course, should, as it were, deviate from itself in any considerable degree, without the agency of some local cause; and we entirely agree in the opinion that it cannot be fairly considered as forming a part of it.

This disease seems to have been known to Dr. Sydenham, and to have been accurately described by him as a prevailing epidemic in England in 1669 under the title of Cholera Morbus; and as he no where mentions bile as forming any part of the discharges from the stomach or bowels it may be justly inferred that if it had, it could not have escaped the notice of so accurate an observer. He says

“ Morbus hic, qui, ut antea diximus, Anno 1669,  
 “ se latius diffuderat, quam alio quovis anno, quantum ego  
 “ observaveram, eam anni partem, quæ æstatem fugientem  
 “ atque autumnum imminentem complectitur, unice ac eadem  
 “ prorsus fide, qua veris primordia Hirudines, aut insequentis  
 “ tempestatis fervorem Cucullus, amare consuevit: Qui ab in-  
 “ gluvie ac crapula nullo temporis discrimine passim excitatur  
 “ affectus, ratione symptomatum non absimilis, nec eandem  
 “ curationis methodum respuens, tamen alterius est subsellii  
 “ Malum



“ *Malum ipsum facile cognoscitur, adsunt enim vomitus enor-*  
 “ *mes, ac pravorum humorum cum maxima difficultate et angustia*  
 “ *alvum dejectis; cardialgia, sitis. Pulsus celer ac frequens,*  
 “ *cum æstu et anxietate, non raro etiam parvus et inæqualis,*  
 “ *insuper et nausea molestissima, sudor interdum diaphoreticus,*  
 “ *crurum et brachiorum contractura, animi deliquium, par-*  
 “ *tium extremarum frigiditas, cum aliis notæ symptomatibus,*  
 “ *quæ astantes magnopere perterrefaciant, atque etiam angusto*  
 “ *vinginti quatuor horarum spatio ægrum interimant.*”

And again in his letter to Dr. Brady describing the Epidemics of 1674, 5 and 6, he says

“ *Exeunte æstate Cholera Morbus epidemice jam sævi-*  
 “ *ebat, et insueto tempestatis calore evectus, atrociora con-*  
 “ *vulsionum symptomata, eaque diuturniora secum trahebat,*  
 “ *quam mihi prius unquam videre contigerat. Neque enim so-*  
 “ *lum abdomen, uti alias in hoc malo, sed universi jam cor-*  
 “ *poris muscoli, brachiorum crurumque præ reliquis, spasmis*  
 “ *tentabantur dirissimis, ita ut æger e lecto subinde exiliret,*  
 “ *si forte extenso quaquaversum corpore eorum vim posset*  
 “ *eludere.*”

The first of these extracts describes the disease with great accuracy as it, very generally, affected the Natives—the second is well exemplified in Dr. Burrell's report as it attacked the Europeans of the 65th Regt. at Seroor. As an example of that form of the disease, it may not be uninteresting to  
 give



give the outlines of a case communicated by Surgeon Craw taken in the presence, and with the permission of Dr. Burrell.

Joseph Smith H. M. 65th Regiment.

A stout muscular man of a sanguineous temperament.—August 15th 1818. 9 o'clock a. m.—Was just now brought into hospital affected with universal spasms; those of the inferior and superior extremities, and of the thorax and abdomen being in particular very violent; but the head and trunk are alternately and involuntarily thrown backward and forward. These spasms remit, and increase in severe paroxysms, and are accompanied with great distortion of the features—strong stridor or guashing of the teeth—foaming at the month—and the most urgent and incessant calls for cold water, with an acute burning and dragging pain at the epigastrium. The pulse is scarcely perceptible at the wrist—the hands and arms are covered with a cold moisture—the feet and legs cold—but the face flushed and bathed in sweat. The pulsations in the temporal artery are small, frequent, fluttering and easily compressed, and he complains of severe headache and of inability to void his urine. The spasms are so violent as to require four men to restrain him and he is more unmanageable and outrageous in his attempts to obtain water from the bathing tub, the sight of which greatly increased his desire to drink. He has been affected, he says, with a watery purging for two days past, and this morning at 2 o'clock was seized with vomitings, and soon after had six watery motions—but these symptoms having somewhat subsided he attended the usual morning parade, which however he was soon obliged to leave

leave from a return of the purging with the most importunate desire for water and burning pain at the scrobiculus cordis. The great thirst and pain at the stomach and the previous symptoms of purging and vomiting, were the cause of his being sent to the hospital; and on his way from the camp (which is more than a mile distant from the hospital, the spasms attacked him. Has used no remedies.

A vein was immediately opened on his admission into hospital but bled with difficulty, and after about 10 ounces had been obtained he was immersed in the hot bath with the vein still open. When about 18 ounces had flowed the spasms abated, the pulse became quite perceptible at the wrist, tho' small and quick and the blood now flowed from the arm in a full stream. Twenty eight ounces having been drawn, and the spasms and pain at the epigastrium having entirely ceased, the arm was bound up, the patient was carried to his cot and 20 grains of calomel with 40 drops of laudanum were now administered. It would be tedious and unnecessary to relate the further particulars of this case. It will be sufficient merely to observe that in consequence of a return of the symptoms 50 ounces of blood were taken in less than 12 hours, before they could be finally subdued. A blister was also applied to the epigastrium, which, without any other remedies than a cathartic on the evening of the 2d day, accomplished the cure.

The disease is also accurately described by Girdlestone as quoted by Dr. Clark, and by Mr. Curtis of Madras in 1782 when it raged in the southern provinces of the Peninsula to a considerable degree, and according to



to Bartolomeo\* “ sometimes carried off 30 or 40 persons in the same place in one day.” The latter author gives the Indian names “ *Nirtiripa* or *Nircomben*, an intestinal colic, which proceeds from cold. This disease is commonly called *Mordexim*, of which Sonnerat drolly enough makes, *mort de chien*, dog’s death.” Of the two first terms we are unable to obtain any translation among any of the languages understood here, probably from the manner of spelling intended to illustrate the pronunciation, and that by a foreigner. If the latter term *Mordexim* be derived from the Sanscrit, Dr. Taylor, who is intimately acquainted with that language, offers the following etymology, making allowance for the orthography. *Mordexim* may be *Mrityookshun*, compounded of two words, *Mrityoo* signifying death, and *Kshun* a moment,† which although

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\* See voyages to the East Indies by F. P. Da Sara Bartolomeo, translated by Foster.

† “ Many of the natives,” says Dr. Taylor, “ in pronouncing this word, would separate the compound letter *mr* into two letters with an inherent vowel between, and would change the letter *t* to *d*, thus converting the word into *Murudookshun*, and supposing the long vowel *oo* to be shortened, as often happens

though not the name of a disease, may, according to the figurative manner of expression universal in these countries, be naturally enough used as such, in the same manner as the words *Jurree Murree*, which signify sudden death, are at the present time in use here, to designate the disease in question. Dr. Taylor has also furnished us with the account of a disease taken from a Sanscrit medical work, the *Madhow Nidan*,

happens in common pronunciation, the sound would then be very like that of the word given by Bartolomeo." On the etymology of *Jurree Murree*, "which may be translated pestilential disease" the same excellent oriental scholar observes, "the derivation of the word *jurree* is not very clear. Perhaps it is a corruption from *jhura* a stream, or *jhurna* to flow, to drop—or from *jiwar* fever: *murree* is from *murun* death. *Jurree murree* is a term used on any occasion of great mortality, whether arising from fever, small pox, measles, or as in the present instance, from Cholera. Among the ignorant and lower classes it denotes not only the disease, but is also the name of a Goddess from whom the pestilential or contagious disorder is supposed to arise. In Hindoosthanee and Guzerattee the present disease is named here either *Murgee*, or *Mirgee*, the former is from the Persian word *Murg*, death, the latter signifies epilepsy. The common Cholera is named in Mahratta *Tural* or *Morshee*, the *r* in the last word being the harsh or Northumberland *r*. *Tural* is a word found in Mahratta works, and is thus described. 'Vomiting and purging, great thirst, and piercing pain in the bowels.' The word *Morshee* we have never met with in any book, and some native Vaidyas or Doctors of our acquaintance suspect that it is a foreign word."

which



which leaves very little doubt that it has not only been long known to the natives, but proves its identity: it is as follows.

Symptoms of the disease named *Visoochi*. Faintness, purging, vomiting, thirst, piercing pains in the bowels (as if thrust thro' by a spear,) vertigo, spasms or knots, yawning, sensation of internal heat, tremors, pain at pit of the stomach, violent headache, retention of urine, *coma*, restlessness, pricking pains in the body."

It is obviously unnecessary to prosecute this enquiry further, and we shall only add that Dr. James Johnson of the Royal Navy is the latest author, so far as we know, who has treated this subject, and who has also the merit of having been the first who has generally pointed out the best method of cure, from a few cases he met with on the eastern coast of Ceylon, where the disease seems to be more prevalent than in any other part of India.

The exciting and proximate causes of this interesting epidemic, although of the greatest importance to be understood, are like those of most other epidemical diseases, concealed under complete obscurity, "*atra caligine mersæ*." Great difference of opi-  
nion

nion exists among practitioners, as to its contagious or non-contagious influence, and this difference very naturally arises out of the difficulty of the subject; and when we consider the various and opposite opinions entertained by the most experienced practitioners of Europe on the same question, respecting the influenza of 1803, and the divided sentiments which have so long agitated the medical world on the subject of the yellow fever, and even typhus itself, we do not venture at present to decide on so important a point. Several irresistible facts already noticed or related in the following reports and its marked anomaly from all hitherto known simple epidemics, would seem to favor the doctrine of contagion, while the contrary supposition is only supported by a species of negative evidence. This is a question however of the greatest importance and ought not to be too hastily entertained as proved, nor rejected as unfounded; but prosecuted with that diligent enquiry and cautious induction, which on every subject of science are so necessary

to



to the attainment of truth ; and we entertain a confident hope that the wide range through India, which the disease has taken, will have afforded to some gentlemen more ample means of determining it than we possess.

The predisposing causes are more obvious, and on this point practitioners are unanimous. Rapid atmospherical vicissitudes in regard either to temperature or moisture; exposure of the body to currents of cold air, particularly the chill of the evening, after being heated by violent exercise of any kind inducing debility or exhaustion, low marshy situations; insufficient clothing; flatulent and indigestible food, especially crude and watery vegetables, which compose a large proportion of the diet of the natives; and particularly that gradual undermining of the constitution which arises in a condensed, dirty, and ill-fed mass of population, are all unquestionably powerful predisposing causes; and though not necessary to the production of the disease, do, when present, offer a more unlimited range

range to the operation of the original cause, whatever that may be. Sad experience has however shown that the absence of all those affords no security against the attack; although it appears that a much smaller proportion of the higher orders of society have suffered from it on this side of India, than in the Bengal provinces; and in this Island, the disease has been confined almost exclusively to that class who are most exposed to the severest labour and privation.

Concealed from our view as the exciting or proximate cause of this formidable disease may ever remain, we have only to observe its effects, and the united testimony of all who have witnessed it seems to show, that there is a *somewhat* which presses heavily and suddenly upon the vital functions, and on many occasions, resembles the effects of a poison taken into the stomach or applied to the blood; but whether it acts more immediately upon the circulating system or the nervous, we cannot determine; the various modes of attack, which have given rise to the division of the disease  
into



into species and varieties, would lead to the supposition that sometimes the one and sometimes the other may be the case. The most general attack seems to consist in a spasmodic affection of the stomach, duodenum, and more especially the biliary ducts (the total absence of bile in the matter voided upwards or downwards being perhaps the most uniform characteristic of the disease, which quickly extending through the whole intestinal canal, discharges its contents; for it has often been observed that the purging more resembles the forcible squirting from a syringe, than the operation of a common cathartic. It is more than probable, however, that these are merely the first perceptible symptoms, for it would appear that a great change has already taken place in the circulating system, and that the action of the heart itself has been greatly diminished before they occur. This seems evident from the numerous cases in which neither vomiting nor purging are present, and in which the first appearance of disease is the almost total suspension of  
the

the vital functions, immediately followed by severe spasmodic affections of the muscles, and coldness of the extremities. It is said that a diminution of the nervous influence occasions contractions or spasms of the muscles, and it is perhaps equally probable that a diminution of the stimulus of the circulating fluid, and especially of the vital heat which it constantly supplies, may produce the same effect. This indeed appears to lay the foundation of the cold stage, and the chain of distressing symptoms that accompany it. There are perhaps few diseases attended with such fatal effects, to which the human frame is subjected, of which so little of the first attack has been observed by practitioners; and this may be perhaps easily accounted for by the insidious nature of the attack itself which is generally unaccompanied with any alarming symptoms, but more particularly when we consider the nature and circumstances of those subjects who have been chiefly presented to our view. They are composed of the poor and labouring classes who are occupied



occupied in obtaining subsistence for the day that is passing, and who, while the excitement which labour and exercise produce remains, may feel but little inconvenience; but the moment that ceases may speedily become its victims; hence it has been generally observed that the attacks are most frequent in the night. These circumstances seem to have given rise to a doubt whether the disease among natives is ever ushered in by a stage of excitement connected with re-action,\* and to have suggested the judicious queries, “ Is this disease ever attended in the beginning with increased heat and quickness of pulse? and, Does this form ever run into the other with cold extremities and sinking of pulse or total want of it?”

So far as Europeans are concerned, Dr. Burrell's report answers the first decidedly in the affirmative; but even among them this stage, under particular circumstances, is not perceptible,

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\* See Mr. White's Report P. 124.

ceptible,—that is, when the patients have been exposed to a draft of cold air in a state of intoxication, a common circumstance among European soldiers. As far too as we have had opportunities of observing the commencement of the disease in natives (which have been confined chiefly to domestic servants who fully aware of its fatal nature seemed anxious to avail themselves of the remedies which they knew we were ready to administer, and which may have amounted to twenty or thirty cases), after a few watery stools, or pain in the bowels, sometimes accompanied with vomiting, we could distinctly perceive a preternatural heat of the skin, with a small, quick and thready pulse, laborious breathing, and in some attended with such a change of features and countenance as to render them with difficulty recognizable by their employers. In such cases if medicine be not immediately exhibited, it is equally certain that the disease in a few hours, assumes all the worst forms that have been described, namely



namely, coldness, sinking of the pulse, spasms and death. It must however be acknowledged that this stage of excitement is by no means so distinctly unfolded among the natives as among Europeans, and this may depend upon constitutional causes.

Dissections abundantly prove that venous congestion constitutes the principal change that has taken place during life, and there is sufficient reason to believe that this takes place in its early stages. This part of the subject is so well illustrated by Dr. Armstrong in his elegant treatise of typhus fever, that we are induced to insert the following extract, as this valuable book may not yet be much known in this country. It is his description of the attack of congestive typhus.

“ The stage of excitement without the interference of art,  
“ never emerges at all, or only does so very imperfectly : the  
“ energies of the system either being nearly extinguished by  
“ the visceral congestions, or so much oppressed, as to be  
“ unable to create an universal reaction. In congestive cases,  
“ the local accumulations obstruct from the beginning the  
“ common series of febrile phenomena, and there is in conse-  
“ quence either a total want of morbid heat, or concentration  
of

“ of it, from partial reactions, in some parts of the body, whilst  
“ others are considerably beneath the natural temperature.  
“ It is the entire absence or the partial presence of excite-  
“ ment, which constitutes the chief external distinction be-  
“ tween the severest forms of the congestive typhus, as they all  
“ coincide in suppressing the functions, or in deranging the  
“ structure of some important organ, by an almost stagnant  
“ accumulation of blood in some part of the venous system.

“ The attacks of the most dangerous forms of the conges-  
“ tive typhus are generally sudden, and marked by an over-  
“ powering lassitude ; feebleness of the lower limbs ; deep pain,  
“ giddiness, or sense of weight in the encephalon, a dingy  
“ pallidness of the face ; anxious breathing ; damp-relaxed,  
“ or dry withered skin ; and those peculiar conditions of the  
“ temperature which have been noticed above. The pulse is  
“ low, struggling, and variable ; the stomach irritable ; fre-  
“ quently there is an inability from the first to hold up the  
“ head ; and the mind is more often affected with dulness, ap-  
“ prehension or confusion, than with delirium. The whole  
“ appearance of the sick impresses the attentive practitioner  
“ with the idea, that the system in general, and the brain in  
“ particular, are oppressed by some extraordinary load.”

Those who are most intimate with the disease in question in all its various modes of attack, will be struck with the great similarity between the two diseases at their first appearance ; the circumstances of which seem clearly to point out that changes somewhat similar, if not the same, take place



place in both, especially in this stage. Experience has also proved that those morbid changes are to be best counteracted by the same remedies.

On the subject of the cure of the disease we need say but little. The practice so judiciously and speedily adopted by Dr. Burrell in the 65th regiment, clearly proves that at the commencement of the disease in Europeans, blood letting is the sheet anchor of successful practice ; and perhaps also with natives, provided it be had recourse to sufficiently early in the disease ; and as long as the vital powers remain so as to be able to produce a full stream it ought perhaps never to be neglected, it having been sufficiently proved that the great debility so much complained of is merely apparent. Calomel as a remedy certainly comes next in order, and when employed in proper doses with the assistance of opium, and more particularly in the early stage of the disease, seems to be equally effectual among natives, as venesection among Europeans, in arresting its progress. In all the cases  
formerly

formerly alluded to, when we met the disease on its first attack, a single scruple dose of calomel with 60 minims of laudanum, and an ounce of castor oil seven or eight hours afterwards, was sufficient to complete the cure.\* The practice of this place, as sufficiently appears by Dr. Taylor's report, bears ample testimony to the controul which calomel possesses over the disease, in as much as it has often preserved life when bloodletting could not be put in practice.

All other remedies must in our opinion be considered as mere auxiliaries, no doubt extremely useful as such, and ought never to be neglected; but particularly the warm bath and stimulating frictions. Even where  
the

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\* We are aware that it may be objected by some that the symptoms there stated are not sufficient to constitute the disease. This objection we have often heard; and in reply shall only say that we have ourselves entertained similar doubt when the symptoms were more equivocal, and have heard of many other cases of the same nature, in which by neglecting to administer the remedies, or trusting them to the discretion of the patient, death has followed in a few hours. Such fastidiousness therefore, is certainly not warrantable at a time when a single disease is daily carrying off 40 or 50 people.



the disease appears to have given way to bleeding, we think it highly necessary constantly to administer calomel. The powerful effect of this remedy in allaying irritability of the stomach and intestines when given in large doses is generally acknowledged by practitioners, in the severer attacks of dysentery: as a great and permanent stimulus to the vascular system it will be readily acknowledged by every one who has suffered for any length of time under its effect in ptyalism, where the bounding pulsations of the arteries of the temples and neck produce very disagreeable sensations, and even preclude sleep. Its powers over inflammation of the abdominal viscera, the liver in particular, and indeed in membranous and glandular inflammation generally, are now universally acknowledged.\*

In a disease therefore in which we have every reason to believe that venous congestion

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\* We read with some surprise the declared opinion of Dr. Armstrong in his treatise on Puerperal fever, that the good effects of calomel were solely owing to its purgative quality, while at the same time he acknowledges that the disease was

tion has taken place to a great extent, we conclude that the liver from its peculiar circulation and structure is more immediately liable to become seriously and permanently injured, it should not be omitted. We have before mentioned that Dr. James Johnson of the Royal Navy seems to have been the first to have pointed out the best method of cure; since most of the foregoing remarks were written, we have seen the second edition of that gentleman's valuable work, in which we find a strong corroborative testimony to the utility of bloodletting in  
this

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both more speedily and perfectly overcome in those cases where ptyalism was produced. He has however made ample amends in the treatise now before us, acknowledges that its value is to be attributed to its specific qualities as a mercurial. It is by the acknowledged errors of such men that medical practice is stored with its most valuable facts. Puerperal fever is not a very common occurrence in this country, although it occasionally takes place; and it is but an act of justice due to Dr. Helenus Scott, formerly of this place, now of Russell Square, to state, that for more than thirty years back he was in the constant practice of treating this fever with calomel so as to affect the system; and that to the best of our recollection he never lost a patient. We are led to make this observation from another motive, as we have reason to believe, that this salutary practice is but little known in this country, and it may serve as a hint which may save some valuable lives.



this disease, or one somewhat similar to it, on the coast of Brazil, by Mr. Sheppard of Witney, without the assistance of any other remedy. The public are greatly indebted to Mr. Corbyn of the Bengal Establishment for his clear and comprehensive letter on this subject at a time when the disease was producing the most dreadful ravages: the early communication of his practice has been the means of saving thousands of lives in situations where Dr. Johnson's work might not be known.

In conclusion, we shall only add, that, whatever place may hereafter be assigned to this disease in nosological arrangement, we cannot help thinking that its present appellation of cholera must be discontinued. If true cholera morbus be, as we have been taught by nosologists to conclude, a morbid flow of bile, the present disease surely cannot be ranked with it; and we agree entirely with Sydenham (if the quotation we have formerly made from him be allowed to be applicable to our present purpose), that though possessing many symptoms in common,

mon, the diseases are yet *toto cælo* of a different nature. “ Quisquis autem *cholera*  
“ *morbi legitimi* phænomena studiose col-  
“ legerit, fatebitur morbum istum, quamvis  
“ eorundem symptomatum nonnullis stipa-  
“ tum, ab hoc nostro *toto cælo* distare.”



It is a very common thing to find a  
 small number of eggs in a nest, and  
 the number of eggs is usually small.  
 The number of eggs is usually small.  
 The number of eggs is usually small.  
 The number of eggs is usually small.

# Medical Reports

RELATIVE TO THE

## CHOLERA MORBUS.

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No. 1.

*Extract of a Letter from Assistant Surgeon Robert Wallace, Deputy Medical Storekeeper in the Deckan, to George Ogilvy Esq. Secretary to the Medical Board.*

Seroor, 22d July 1818.

**T**HE Cholera Morbus made its appearance in our cantonments yesterday and has to day attacked both Europeans and Natives. The disease is most formidable: we have found the large doses of calomel, oil of peppermint and laudanum generally succeed in checking the vomiting and purging; but the most formidable symptom is the sudden debility and coldness, which seem to indicate



cate the use of the most powerful stimulants : the hot bath has been found very useful.

I never yet saw a disease where the debility came on so suddenly and with such violence, it is common to find patients one hour after the first attack perfectly cold with no pulsation whatever in the arteries of the wrist.

I have had about sixty cases amongst the Bazar people and followers : four of these died last night, but the number of cases is increasing every hour.

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## No. 2.

*Extract of a Letter from Mr. Wallace to John Milne Esq. M. D. Actg. Superintending Surgeon with the Deckan Force.*

Seroor, 22d July 1818.

Since I wrote yesterday, the Cholera has gradually increased. I have had about sixty cases amongst the Bazar people and followers ; of these four have died ; and there must, I fear, be more casualties in the course of the day. The disease is ushered in with purging, succeeded by vomiting ; and both discharges are of a dark colored watery nature. These symptoms are quickly  
ly

ly succeeded by spasmodic cramps, chiefly of the extremities; at this period sometimes within an hour after the first attack, the alarming debility, attended with universal coldness, sinking of the features, and indistinct pulse, come on.

I have in most cases succeeded in arresting the vomiting and purging by large doses of calomel and laudanum; but it has been necessary in almost all the cases to repeat the laudanum and peppermint, to allay the spasms and pain in the abdomen. After all this has been done, the debility and coldness remain to be conquered; and I think the most active stimulants are now required. I have begun to day to give arrack in hot water and congee to the Natives (for they are too numerous to be supplied with ammonia, ether &c.). The coldness and debility have in some cases continued for twelve hours, when heat and subsequent moisture of the skin are the favorable prognostics.

The disease has attacked the European soldiers, both in the 65th regiment and the artillery: five of the former and ten of the latter are affected to day. The symptoms are extremely formidable; the alarming debility is here also the prominent symptom; it is fully as remarkable, as in the Native patients. The same treatment

has



has been found applicable to both. The Europeans have found great benefit from the hot bath; and I shall endeavor in the course of the day to give the Natives the advantage of the same. We are engaged in a very melancholy duty; and I fear that the disease will spread all over the western provinces.

(Signed) ROBT. WALLACE.

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No. 3.

*Extract of a Letter from Mr. Wallace, To Dr. Milne.*

Seroor, 25th July 1818.

As far as my experience goes, the cholera is already abating; my admissions of Natives decreased considerably yesterday, and they are still less to day. The symptoms, however, are still very violent, and unremitting care and activity is required to arrest their progress. I believe Mr. Corbyn's practice to be very efficacious, when adopted early: the majority, however, of my cases did not apply for relief, until they had been attacked for some hours, and the medicine was almost invariably rejected, in common with every liquid. I determined to exhibit the remedy in a-  
nother

nother form, and rubbed up two grains of soft opium, fifteen grains of calomel, with about two drams of honey. This was gradually swallowed, and dropped into the patient's mouth by the finger. After this, he was placed in the hot-bath, and small quantities of hot arrack and water, mixed with spices and sugar, given to drink. The patient commonly fell asleep; and in favorable cases awoke free from danger. In others, the coldness and spasms recurred, when recourse was again had to the hot-bath, and opium, administered in various forms. Twenty two cases only were admitted yesterday, and all of these, except two, recovered.

The disease is, now diffused all over the cantonments. Fifteen fresh cases were received to day into the 65th hospital: two men died in the night; but I think their practice has been very successful.

The cholera has made it's appearance at Ahmednuggur: but from what I can learn, it is not so violent in it's symptoms, as it has been here.

(Signed) ROBT. WALLACE.

Copy



## No. 4.

*Copy of a Letter from Doctor Wm. G. Burrell,  
Surgeon of H. M. 65th Regiment, to Doctor  
Milne.*

Seroor, 27th July 1818.

MY DEAR SIR,

The Cholera Morbus has been, in these cantonments since the 18th instant. In the 65th regiment it commenced on the 21st, the admissions are as follow—

21st. ....	1
22d. ....	6
23d. ....	6
24th. ....	18
25th. ....	22
26th. ....	7

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Total. ....	60
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Deceased. .... 4

The soldiers of the regiment not aware of the danger of the disease, did not report themselves for the few days they felt unwell, these cases comprized the admissions of the 21st and 22d instant; when admitted into regimental hospital, the utmost debility was apparent, consisting of feeble pulse, cold extremities, nausea, and constant vomiting with spasms, these were followed by universal sinking and coldness of the body, and  
death

death ensued in the space of 12, 14, and 21 hours after admission; the warm bath, calomel and opium were tried, along with the most powerful stimulants, with little success.

On the 22d instant, when the men had been duly warned of danger from not reporting themselves sooner, I got into hospital a different description of cases, viz. men with a full pulse, hot skin, constant vomiting of white matter, like thick conjee, seldom any purging; if it existed, it was like the matter vomited. Bleeding was used in every case with so much success, that I have no hesitation in recommending its adoption.

The first symptoms in the attack, were languor, with occasional pains and sense of numbness in the extremities, violent headache and thirst; shortly there ensued nausea, vomiting of slimy matter, weight over the precordia, with griping in the bowels, small stools of white slimy matter, no appearance of bile from the stomach or bowels; the spasms followed, in many cases so violent, as to require six men to hold the patient: if relief was not immediately given, it is astonishing how soon the system sinks under the attack, marked by the ends of the fingers and toes getting cold, pulse and motion of the heart ceasing, with a livid mark round the eyes. From this state, some men recovered under the stimulating plan; although they



they had lain in that condition from six to twelve hours, but it is to be looked upon as one of the most dangerous symptoms of the disease.

On admission I bled in every instance, in general to a good extent; where universal spasms existed, venesection was carried on ad deliquium, the patients at the same time in the hot bath at 110 degrees, the spasms were invariably relieved, nausea and vomiting alleviated, so that the stomach bore the exhibition of the calomel in scruple doses, combined with laudanum; which doses were frequently repeated: in short, opium was given under every combination with calomel; and I believe the calomel will be found to rest on most stomachs per se.

The application of blisters was not attended with much advantage; although they might do good in some cases: every dependence is to be placed on the hot bath with the means above mentioned. Frictions with stimulants to relieve the cramps, are never to be depended upon when the patient comes under treatment in the first stage, as bleeding relieves the congestion of the liver and internal parts, and the patient falls into a refreshing sleep. The next day his gums will likely be affected, stomach quiet, and capable of bearing some of the common cathartics, the exhibition of which is followed by dark bilious stools.

From

From having so much duty at present, I am sorry I cannot enlarge upon this topic ; but have only to mention my full confidence of bleeding in Europeans : the result is most striking in our hospital, as it in every case lessens the irritation of the stomach, one of the most dangerous symptoms in this disease. Bleeding has been tried on the Native attendants with the same good success.

As every epidemic by accumulation of subject, has a tendency to propagate its virus, I am cautious in reporting this disease not infectious : almost every attendant in the hospital in the short space of six days has had the disease ; there are about thirty attendants in hospital.

The regiment is about 800 strong, the admissions from the regiment bear no proportion to the attendants who have been taken sick. The mercurial influence in a small degree does not guard the patient from attack, as has been clearly proved in our wards ; full mercurial influence might prevent it.

I remain, Dear Sir,

Your very Obedient Servant,

G. BURRELL, M. D.

*Surgeon H. M. 65th Regt.*

J. MILNE Esq. M. D.

*Act. Suprintg. Surgeon,*  
POONAH.

No.



## No. 5.

*Extract of a Letter from Mr. Assistant Surgeon  
Richards, to Dr. Milne.*

Punderpoor, 28th July 1818.

“ The weather still continues very sultry. Up  
“ to this afternoon, we have lost twenty five  
“ patients, out of one hundred and ten. Capt.  
“ Sykes’s detachment arrived here this morn-  
“ ing; they have suffered severely from the  
“ Cholera Morbus, and have brought in twenty  
“ three cases.”

“ In many instances the patients have voided  
“ the round worm from 6 to 18 inches in length;  
“ but this peculiarity has been chiefly confined  
“ to the sepoy of the 2d battalion 15th regi-  
“ ment.”

“ In a few instances the spasms had been so  
“ severe, as to produce lock-jaw; and in these  
“ cases, I have used the lancet with much suc-  
“ cess.”

*True Extract,*

J. MILNE, M. D.

*Act. Sup. Surgeon D. F.*

## No. 6.

*Copy of a Letter from Assistant Surgeon Thomas Whyte, to Dr. Milne.*

Seroor, 28th July 1818.

DEAR SIR,

I duly received your note requesting from me any practical remarks I might have made upon the prevailing epidemic.

The Cholera Morbus made its first appearance here in the lines of the foot artillery, and attacked in succession every other corps, except the 4th light cavalry and 22d dragoons, which from situation or some other cause have hitherto escaped. I am the more inclined to think, that these corps owe their exemption to locality, from the following circumstance—The Madras dooly bearers were encamped at the W. end of cantonment hill, between it and the nulla which separates the cavalry from the infantry lines; and while in that situation, several were attacked by the disease, and 3 or 4 died. At the request of the Assistant Surgeon of the 22d dragoons, whose duty it was to attend them, they were removed to a situation near the lines of that corps, that he might be at hand to afford them the most speedy aid; and since their removal, I understand no fresh cases of Cholera have occurred. Since  
the



the epidemic showed itself here, the days have been exceedingly close and sultry, and about sunset a piercing cold wind has set in from the S. W. : this wind blows down the channel of the nulla mentioned above, turns the corner of cantonment hill, and blows over the cantonments. From want of a thermometer, I could not judge accurately of the degree of heat ; but from my sensations, I think it's range must have been extensive. The class of people which has principally suffered from this disease, is composed of the poor, badly clothed, or fed, and those of a debilitated constitution ; or else of men, in whom the perspiratory process has been highly excited during the day, whether by violent exercise or exposure to the sun ; and in this way sometimes the stoutest and healthiest men suffer. While this disease bears all the characters of an epidemic, undoubtedly depending upon some peculiar and unknown properties in the atmosphere, it appears to be more readily caused by currents of that atmosphere blowing from particular quarters ; and what is of great practical importance, a situation sheltered from these currents, a situation for example, in the lee of a hill, is particularly free from the influence of this epidemic. It appears to me that, in some constitutions, this cold wind, instead of producing Cholera, causes a regular

gular attack of ague and fever. You will observe by the abstract of the 7th, that 18 cases of fever were admitted last week, although the period of their admission was not the springs, when that disease commonly shews itself: in few of these men did more than one fit occur. The above impression was made stronger on my mind, from what took place in my own person. After all my perspiratory pores had been kept open some time, in a crowded hospital, on going across the parade, I was suddenly seized with a cold shivering and trembling fit, which lasted some time after my return home. All my thoughts were fixed on Cholera. By means of the pediluvium and mulled port wine, however, I restored warmth and comfortable feelings, but suffered a smart febrile attack after going to bed, which kept me hot and restless during the night; but from which I, in the morning, arose free tho' languid. I think, that had my constitution been so predisposed, the same cause which produced fever, would have brought on cholera morbus. From observation, as well as analogy, I think there is no ground for the belief of some, that this disease is contagious. The opinion I learn is entertained and acted upon at Punderpoor; and if erroneous, I need not remark, what ills it is calculated to produce, in as much as it withdraws attention  
from



from the true means of prevention ; and perhaps in some instances may deprive the afflicted of that kindness and attention, they have a right to expect, and otherwise would be sure to receive from their friends and relations. After the mistake, which the accurate Cleghorn was led into regarding intermittent fever, and a similar mistake prevailing so long, but which is now generally given up, regarding yellow fever, and particularly in consequence of the many evils, which an erroneous opinion of this kind must give rise to, something more than ambiguous evidence should be required to establish a point of so much importance.

From being without a native assistant in the light battalion, I was obliged, as the only alternative, to get those men of that corps who were attacked with this disease, carried to the general hospital, where I at first attended pretty constantly throughout the day ; and the consequence was, that my observation was extended to every case that was admitted into the hospital. The symptoms in every case, were much alike ; at first, the disease was of the most violent form, and what was worse, in the most advanced stage before the patient applied for relief ; most having been attacked from 8 to 16 hours before, so that you may imagine many came then with no prospect, but to die,

die, and the scene, by this, was rendered most distressing. The first seapoy who came, had been attacked at 12 the night before, and was brought at 10 in the morning: the spasms had extended to the muscles of the chest and arms; and the first dose of medicine immediately rejected: his countenance expressed the greatest distress, and frequently the pain from spasm was so great, that he roared out in the most piteous manner: temporary relief was procured from the warm bath; but nothing could controul the disease, and he died at 12 o'clock the following night, 24 hours from the first attack. The day before, a seapoy of the 7th had died of the disease; he was attacked at 5 o'clock the night preceding; I saw him at 7 the following morning in the last stage; he was perfectly sensible, the spasms had ceased, no pulse was perceptible, coldness like that of death extended over the whole body, all voluntary contractile power of the muscles was gone, and in this state he died at 12 o'clock at noon.

The account, which Curtis, in his diseases of India, has given of cholera spasmodica, accords very exactly with the symptoms of this disease in its most violent form, in which it first displayed itself; and the practice recommended by Johnson is that which I have pursued, and I may add with almost invariable success, where the patient  
has



has complained in time; but, alas! the disease in its commencement, and often for a few hours of its progress, is most insidious, by which means the patient is seldom alarmed, until considerable danger has arisen. The statement, which Mr. Corbyn has given of 108 successful cases, treated out of 110, seems to me calculated to mislead, and raise expectations that must be disappointed. However, the remark which he makes shortly after, that after a lapse of 6 hours from the attack, the remedies he recommends, will seldom produce any benefit, seems fair and candid; and I have to lament that very few of the cases, that presented themselves at the general hospital, were admitted so soon, most of them considerably later. The disease generally begins with a watery purging unattended with griping, or any pain, which is followed, at an uncertain period of from half an hour, to 5 or 6, by vomiting of a white colored fluid; but sometimes, the attacks of both are simultaneous. I will here add my testimony, to the heap of evidence before accumulated, that in this form of the disease I have never observed any thing resembling bile discharged upwards or downwards. The vomiting and purging is soon followed by great debility, and sinking of the pulse, the extremities become cold, the eye sinks into the socket, the vessels

vessels of the tunica adnata are injected with blood, from which, if the disease advances, a film is in a few hours formed, the features express the deepest distress and the eyelids are either wholly or half closed. The patient invariably complains of great heat and thirst, and the calls for cold drink, although he is told of the danger attending it, are incessant: indeed the only way to prevent its being given to him, is to place a sentry at the door for the purpose of preventing any being carried into the hospital; otherwise some are sure to suffer from the mistaken kindness or easy compliance of their friends. The tenesmus now becomes constant; although nothing is discharged, but the fluid above mentioned, and a substance like the congealed white of an egg: the uneasiness and jactation are so great that it is with the utmost difficulty we can get an opportunity of feeling the pulse, which by this time is not always perceptible, although it is generally so until the spasms come on. These attack at no fixed or determinate period of the disease; but in general not for many hours after the vomiting and purging; and medicines given before their appearance will in general be attended with success. The spasms are always of the tonic kind; attack first the toes and legs, and extend up to the thighs, muscles of the abdomen, chest and arms. When they reach the chest,



chest, the difficulty of breathing becomes so urgent, the sense of suffocation so great, that I think the diaphragm must be spasmodically affected at the same time. The patient frequently is heard to call out that he is dead, feeling I suppose as if he had resigned his last breath, while the diaphragm is fixed. All this while, unless checked by medicine, the vomiting and purging continue, and very commonly worms of the lumbrici and teniæ kinds are discharged. They are so common, that some have thought them connected, in some measure, with the cause of the disease; however I look upon them as purely accidental. The vomiting and purging are usually checked by medicine, and always greatly alleviated, a considerable while before the spasms disappear; indeed I have often observed the spasms of the arms come on, after these had been stopped, and while arterial action was encreasing, so that I have been led to believe, that, after the spasms have formed, the disease will run through it's course, mitigated in degree, although regular as to the order of muscles affected in succession. The first signs of amendment, after the vomiting and purging are checked, are a warm sweat on the forehead; the tongue, which before was white, dry and cold, becoming warm; less uneasiness and jactation; an inclination to sleep, and often,  
with

with care, a small *firm* beat of the pulse at the wrist may be discovered. Whenever heat is restored for any time to the extremities, or a warm sweat becomes general, or bile appears in the stools or in what is vomited, the patient is out of danger. In two favorable cases, both old men, there appeared in the stool a copious red colored fluid, apparently blood slightly diluted with water. The patient, after a severe attack, in general continues so weak, as to be unable to stand for several days, and in a few cases, I have observed afterwards, great heat of the surface, with a bilious vomiting and purging. The most unfavorable and dangerous signs are, the coldness extending to the region of the heart & stomach, the skin under the nails appearing pale, the nails becoming inverted towards the skin, the tongue continuing icy cold, an universal cold colliquative sweat, shrivelling of the cuticle of the palms of the hands and soles of the feet, the spasms disappearing while these symptoms continue to increase. In general, all pain and spasm leave the patient before death, and although the heart cannot be felt to beat, he expresses himself easy, and says he is better; but I sometimes have seen him in the greatest agony shortly before, rolling himself on the ground and groaning, sometimes bellowing most piteously. The latter symptoms I have observed,



served, I believe are confined to patients who linger 3 or 4 days, before death comes to their relief, in whom the disease appears at first to be vanquished; but whose vis medicatrix naturæ is not sufficiently strong to excite that reaction of the system, in which the return of health consists. I at first thought, that in a disease of so much violence, there was no such thing as a spontaneous cure; but a man who had been affected 3 days, was brought to the hospital this morning, in whom the spasms had almost entirely gone off, and whose pulse could be felt at the wrist, although from the description he must have sustained a violent attack, and he had taken no medicine.

I remarked before, that the practice I had followed, was that first recommended by Johnson, and since by Mr. Corbyn, in which the cornerstone and sheet anchor is calomel in a large dose of 15 or 20 grains to an adult, according to his strength. I have had the most manifest proof, both in this disease, and formerly in severe fever and dysentery, that calomel in this quantity, acts as a powerful sedative, often allaying vomiting and soothing uneasy sensations, when no other medicine will produce such beneficial results. I have in no case left the cure alone to the usual anodynes and antispasmodics; so that I am not able to  
say

say from my own observation what would be the result in such a case ; and I have felt little inclined to do so, in consequence of the indifferent success Mr. Curtis met with, from the use of these medicines. I have always combined the calomel with opium, sometimes the extract, sometimes the tincture, and usually with a few drops of the essential oil of menth pip. but very often both the latter and the tincture appeared to excite vomiting, in which case, after resting a little, or after the warm bath, the dose of calomel has been repeated, combined with the extracts and a little honey or conserve. The orgasm of the stomach and intestines by this means is generally speedily allayed ; but often the spasms and coldness continue sometime ; to remove which, I have seen nothing act so surely, as the warm or rather the tepid bath ; if too hot, the bath will do more harm than good : after 15 or 20 minutes in the bath, the spasms in every case disappear, heat is restored, and the pulse returns to the wrist. But after the disease has advanced too far, these effects, although always produced, are but of short duration, the pulse disappears again, the coldness returns : as auxiliaries, strong stimulating and anodyne liniments, æther, or hot brandy and water, in small doses, repeated frequently, until a complaint is made that they increase the  
heat



heat of the epigastrium, warm clothing, and opiate injections, are almost all that I have used; & in these cases will always produce the best effects, although, they ought in no case to be omitted. The patient's calls for cold drink are constant, and if indulged, will counteract the effects of every remedy, causing the vomiting, spasms, and other bad symptoms to return, with as much violence as before. The less his desires for drink of any kind are complied with, the better, as they never relieve the sense of burning heat and thirst; and when accumulated in any quantity must be discharged; thus increasing the irritability of the stomach to such a degree, that at last whatever enters the œsophagus is immediately spouted up. If the calomel and laudanum are vomited soon after administration, without having produced any benefit, we must always repeat them after waiting a short time; *the quantity taken is of no importance* until beneficial results are produced; for the production of which we must give sufficient time, and in the mean time it will be proper to forbid any thing being taken into the stomach. If sleep or warmth succeed, we may conclude the remedy hath effected all we want, and if no check is given by cold air, cold drink, or *any drink for sometime*, health is sure to follow. Too much laudanum without a combination of calomel

calomel to counteract its constipating effects, is attended with danger, as it checks the vomiting and produces stupor without encouraging the secretion of bile and flow of perspiration, in other words, restoring the balance of circulation; a derangement of which appears to be the whole of this disease, and to the restoration of which I think all our efforts should be applied. A man cured by doses of opium every hour, or half hour, without the combination of calomel, is never secure from danger. Three or even four days afterwards, he may have a relapse, differing from the former, in as much as the pain is generally fixed, and most probably depends upon inflammation of some of the viscera of the abdomen, and these relapses are pregnant with danger. I have mentioned what I think the only true theory of the disease, the only one which will account, satisfactorily, for every symptom of it; and the modus operandi of those medicines which are found to cure it. I ought rather to say I have hinted at, and it is not my intention to inlarge upon it. It accounts too for the utility which has arisen from bloodletting, a remedy I have not mentioned; although, in many cases, I think it must be powerful in doing good, but most of the cases I have seen have appeared to me unfavorable to its use. In conclusion, I am  
happy



happy to inform you that for the last three days, the disease has evidently been on the decline, and during that period most of the cases have assumed a different and much milder type; and comparatively are little dangerous. It approaches somewhat to fever, the patient complains generally of severe pain in the abdomen from the first, spasmodic pain of the legs, sometimes vomiting a watery fluid and sometimes bile; but in every case the heat, so far from being diminished, is increased, and the pulse is full, tho' little increased in frequency. The disease is attended with this advantage, that in it's first appearance it is alarming; the pain in the abdomen and the spasms of the legs are pretty severe, but besides he is possessed with emotions of fear and alarm, greater than the symptoms ought to give rise to, and for which he, when asked the reason, is totally at a loss to account. A large dose of calomel and opium, in every case, has been sufficient, and generally in a few hours he goes home quite well.

(Signed) THOS. WHYTE.

No]

## No. 7.

*Copy of a Letter from Assist. Surgeon Charles Daw, to Dr. And. Jukes, Tannah.*

MY DEAR SIR,

I received your letter of the 19th instant yesterday, requesting me to give you some account of the Cholera Morbus, as it has prevailed here, and the mode of treatment which has been found most successful; and as the disease appears to be extending very rapidly towards the coast, which induces me to fear that even your insulated situation may not be exempt from its ravages, I lose no time in acceding to your wish, though I must in the first instance bespeak your candour in favour of observations so very hastily drawn up.

As I presume you have seen the letter written by Mr. Corbyn, who had charge of the Native hospital, centre division of the army at Eritch, to Captain Franklin, Assistant Quarter Master General of the same division, on this subject, perhaps I could not do better than recommend you to pursue the plan of treatment therein laid down, as it is the same with very little variation that I have adopted; but as I know you will be glad to hear that success in my own practice



practice tends to corroborate his, I shall make no apology for mentioning the history and treatment of this disease, though I should thereby have occasion to repeat in nearly similar words much of what he has related, as well as those circumstances where any difference has occurred either in the symptoms or plan of cure, in order that you may have at one view, as complete a knowledge of the subject as it is in my power to give you. I sincerely wish that we could receive a second letter from Mr. Corbyn on a subject, that his extensive practice so well enables him to speak on, and which he almost promised to do, in his first letter, or as he modestly expresses it "correct the errors that from pressure of business might therein occur."

Some of the symptoms of Cholera Morbus, or rather I should prefer the French term of *mort de chien*, as it has occurred here, are as follow.

The patient is suddenly seized with violent and frequent vomiting and purging, which is attended with immediate coldness of the extremities, anxiety of countenance, and great prostration of strength. The stools consist principally of mucus and water, or muddy looking water, and seldom shew any appearance of bile  
mixed

mixed with them. The vomiting is also not bilious, which in a great measure distinguishes it, from the commencement, from common Cholera ( I have made it a rule, when the stools and matter vomited were bilious, to moderate the doses very much, but still act upon the same plan, and the result has been very satisfactory ). The pulse is very feeble and small, but in most cases it is scarcely perceptible, and frequently from the first attack is not to be felt at the wrist. There is often great pain and sensation of burning heat at the pit of the stomach, the skin breaks out into cold clammy sweats, the eyes sink, the breathing becomes oppressed; in some cases there is great restlessness and anxiety; in others the diminution of strength is such that they are unable to move, and lie on the cot as if dead or insensible; if roused however, they speak, and seem to retain their senses as long as the tongue can give utterance, and shew by signs, sometimes even when past articulation, that the senses are not impaired. At an early period, a most distressing thirst prevails, and the patients are particularly anxious for cold water in preference to any thing else, in which, should they be indulged, all attempts at recovery afterwards seem almost useless. In many cases there is present on their first arrival at the hospital an extreme  
yellowness



yellowness of the eyes, and if the skin is clear enough to shew it, a sallowness of countenance, at once denoting the state of jaundice that immediately preceded, and, I think I may add, brought on the attack. In almost all instances, either sooner or later, the legs and arms are affected with rigid spasms, which soon extend to the abdominal muscles, and those of the chest, which occasions hiccup, and most violent pain about the diaphragm. The urine is very scantily secreted throughout. These symptoms rapidly increase in violence, the strength abates, the whole body grows cold, and in a very few hours the scene is terminated by death.

I have noticed in more than half the cases of Natives that I have attended, that the tongue is quite clean, and I have always found it a very favorable symptom.

Such is the disease as has appeared among Natives, and my own practice is too limited with Europeans, to speak much on the subject. In all cases however that I have seen, Europeans complain a great deal more of the violent burning sensation and pain at the pit of the stomach. I take the liberty of making an extract from a letter of a Medical officer whose practice has been chiefly among Europeans, and who I am sure will

will excuse my doing so without waiting for his permission, which describes the dreadful rapidity of the course of this complaint, which will shew you in how much it resembles the description of it as it exists amongst the natives. He says "the patients sometimes walk to me, but are more frequently brought in a dooly, they complain of cramps in the legs, the countenance, skin, and pulse indicate immediately the nature of the disorder. The face, to make use of a common expression, is fallen in, collapsed, and eyes sunk. Skin cold; no pulse, or if any, feeble and scarcely to be felt. In half an hour the body becomes clammy, and cold sweats pervade, the pulse sinks, the eyes become fixed, spasms become general, and the patient dies in a few hours, not less than five, and few exceed twelve or fourteen."

The exciting causes of *mort de chien*, in that violent degree that it has prevailed over so large a portion of India, and still continues to do, seem unknown. I do not think it is an infectious disease. But there are certainly many circumstances which favor a different belief. If it be not infectious, it is strange that it should for the most part have been regularly progressive from place to place, and equally violent under the varieties of temperature and seasons, without  
regard



regard to age or sex. It has never appeared, as far as I remember, at distant stations at one and the same time; and till we obtain farther information on the subject, it is not possible to determine either that it is, or is not an epidemic, or infectious disease. Perhaps endemic is at present the better appellation.

Of the predisposing causes among Europeans, excess and intemperance, whereby men expose themselves to the night air by falling asleep in a state of intoxication, are the most decided. And the fatigue and exposure which native followers are subject to, together with want of clothing, bad food, eating the colder kind of fruits, such as melons, cucumbers, raw vegetables and grain, are sufficiently obvious causes of disease, and never fail of producing more or less of fevers and bowel complaints at this season of the year. During this monsoon however these complaints have been much fewer than is usual, and the Cholera Morbus has instead been the prevailing disease. There is an illustration which is every striking of what care and temperance will do to preserve Europeans from this disease, which I will give you—Two bodies of men, one of nearly three hundred, and the other about one hundred (this is very nearly the numbers but not exact), were in adjoining situations, when the disease broke out in  
the

the place where these troops were. The 100 men immediately determined, that, by great temperance and care, and by not exposing themselves unnecessarily, and in particular by avoiding the night air, to endeavour to escape the disease. It succeeded so well that only one man had an attack of it; while the other body of men, the 300 who took no such precaution, lost one tenth of their whole number. You may think from the manner in which I have written this, that I have no distinct information as to numbers; but had I time, I could easily procure the exact statement, which I am quite certain would very nearly agree with what I have said from memory.

With all this however the real and essential cause is as much concealed as ever.

The proximate cause I consider to be spasm in the finer vessels of the liver, and particularly in those which, from their minuteness and arrangement resembling the hairs of a pencil brush, are called penciilli.

As to the treatment of this disease when the patient is first brought (and the greatest care and attention is necessary that no delay take place after the attack), I put twenty grains of calomel upon the tongue and wash it down with sixty minims or (120) one hundred and twenty drops  
of



of laudanum, twenty minims or (40) forty drops of Essence of peppermint, and two ounces of water.\*

In cases where Europeans are attacked, copious bleedings are said to be attended with success, as well as is also the application of the most violent blister.† I have bled Natives, but without benefit; and I have known the lancet equally unfortunate where employed with Europeans: still it has been so strongly recommended, that I should not hesitate to bleed any whose pulse was strong enough to warrant it; and if I did so, I should think 30 or 40 ounces was not carrying the plan

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\* To those who are not medical it may be proper to observe, that the college of physicians of London have, in their last pharmacopœia, introduced a small glass measure, which is graduated to (60) sixty divisions of a fluid dram (the 8th part of an ounce), which are called minims, in order to give security to the dose ordered, which was never the case with dropping; as one bottle will make the drop twice as large as another; and in common, 120 drops are only equal to a dram or 60 minims: and as Mr. Corbyn says 60 *drops*, when writing to Captain Franklin, I imagine he can only mean half the quantity which I am in the habit of giving.

† If you should not have noticed the effects of the pure aromatic vinegar (Henry's is in general the best), it will be useful to know that it instantly raises a blister, if rubbed on the part where required, and is pure: but in a case of this kind, where all your efforts are to be confined to a few hours, I should not hesitate about using even boiling water, the most violent caustic, or any of the violent applications of butter of antimony, milk bush, or euphorbium.

too

too far. If the first dose of calomel and the draught should be immediately rejected from the stomach, the dose should be repeated; but if retained for a short time, half the quantity will be quite sufficient both of the calomel and the opiate. From this time till the symptoms are relieved, or the patient falls asleep, during which probably the extremities will grow warm, and on awaking he will appear to be nearly recovered, let the following draught be given every hour—of laudanum 30 minims, peppermint 10 minims and water two ounces.

For the coldness of the hands and feet, it is necessary to have recourse to anodyne fomentations, hot cloths, bottles filled with hot water, frictions with flannel, and the like, constantly applied.

The contraction and spasms of the extremities and muscles are relieved in a great measure by champing, and friction with stimulating oils and the ammoniacal liniment.

If the vomiting continues, I have seen the most beneficial effects arise from a tea-spoonful of the eau de Cologne, or æther, given with the opiate; medicines are also often retained by giving them the instant that the stomach is a little composed after vomiting.

For



For the jaundiced appearance which I have noticed as a common symptom present on the first attack, I always give a pill, composed of two grains of rhubarb, one grain of calomel and two grains of Castile soap (if too large they may be divided to form middling sized pills;) this serves to assist the bowels as a sort of artificial bilé, as well as to stimulate the liver to its natural and healthy action.

As soon as the common symptoms of Cholera Morbus are relieved, it is necessary to give some opening medicine, of which, castor oil is decidedly the best, to endeavour to obviate as much as possible the effects likely to be produced by such large doses of calomel and laudanum as have already been exhibited. The use also of enemas, composed of half a pint of congee with a tablespoonful of common salt, is remarkably serviceable at this period.

It often happens, although the patient is entirely relieved from the symptoms of mort de-chien that still other complaints remain, induced probably either by the severity of the disease, or the doses administered; of these one of the most common is suppression of urine: when this is the case, let the patient be immediately put into the warm bath, and have fomentations constantly applied to the abdomen. Let about 15 or 20 grains of  
of

of nitre be dissolved in a pint of conjee, and given as common drink: should the case be suppression, this will for the most part be efficacious; should it be only a case of retention, the catheter is alone necessary.

Against I hint, in every period of this disease, warm conjee is the only proper beverage.

Another complaint succeeding *mort de chien*, is, where the liver is deficient in action and the bile is not secreted in healthy quality or sufficient quantity: in such cases, the rhubarb and soap pill, or if necessary, 5 grains of the blue pill, every night, will speedily restore its natural action.

The extract of *Taraxacum* is a most excellent remedy to give in completion of the cure, and to assist in restoring the natural secretions and evacuations. When debility alone exists, the usual bitters and stomachics are to be administered; such as camomile, columbo, gentian, bark &c.—But I have found that a weak infusion of create (*gentiana chirayita*), gradually made stronger as the patient recovers, exceedingly useful (and indeed I think it is a medicine most deserving of every attention, in other diseases as well as this, where tonics are required).

This will in general complete the cure, unless some internal obstructions prevent it; in which  
case



case the usual remedies are to be employed, as if it were an original disease wholly unconnected with the cholera morbus.

You will perhaps think it strange that I should say nothing about dissections, and appearances after death. The truth is, I cannot imagine that much is to be discovered thereby; and I may venture to say, that not one half of the diseases which have appeared upon dissection can belong to or arise from Cholera Morbus. Let me recite part of the list now before me in print and manuscript. The intestines were inflamed, corrugated and flattened, the stomach inflated, and liver not much altered, the gall bladder distended. Another has the stomach highly inflamed, and corrugations as from spasms, the intestines contracted longitudinally, great accumulation of bile of dark green colour. In others, inflammation of the heart with the pericardium, congestion of the small intestines and mesentery, no disease about the liver, the gall bladder filled with healthy bile, the spleen enlarged and turgid &c. &c. Now when it is to be considered, that a man is so violently attacked as to fall down as if shot, when previously in perfect health, I consider that it would be impossible such effects should be produced as those mentioned above in the course of six or  
even

even twelve hours, and few live longer, more especially when not only the sanguineous but the nervous system seem almost destroyed, or to say the least are so languid and feeble as only just to shew signs of life. The pulse, you recollect, scarcely perceptible and the extremities cold. Surely it is impossible that secretion and inflammation could go on to any extent under such a stagnation of the whole fabric. It is true that at present neither inflammation or secretion either may be thoroughly understood; but I imagine no one will like to support such an opinion as that either of them, particularly the latter, could happen without some extraordinary action of arteries or nerves; and I cannot believe that we can therefore consider dissection likely to throw much light on the disease.

I have now mentioned the principal facts and observations which occur to me either as to the symptoms or treatment of *mort de chéin*; and if, unfortunately, any cases of this disease should appear and come under your care, I hope you may experience some advantage from them.

As to the kind partiality which induces you to wish me to make these observations public, I will confess to you that I should be most happy if I could thereby render any service, either to the  
profession,



profession, or the melancholy sufferers who may be affected with this disease; and I leave it entirely to yourself to judge if there is aught in what I have said that can make it worth while publishing after Mr. Corbyn's letter; if you think there is you have my full permission for doing so.

With the best wishes for your success, I remain, my dear Sir, your most faithful friend and servant.

CHARLES DAW,

*Assist. Surg. B. E. in Med.  
charge of H. H. the Ni-  
zam's Regular Infantry in  
Berar.*

AURINGABAD JULY 29th 1818.

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No. 8.

*Extract of a letter from Assistant Surgeon Wallace, to George Ogilvy Esq. Secretary to the Medical Board.*

Seroor, 29th July 1818.

SIR,

I am happy to state for the information of the Board, that the number of people attacked by Cholera has decreased for the last three days; and that in the majority of cases where the disease is combated at its commencement, the practice

tice has been very successful: in the worst cases it is necessary to conquer the spasm before the calomel and laudanum can be retained on the stomach: this has generally been done by immersing the patient in the hot bath and bleeding him, letting the blood flow till the contractions of the muscles subside; at this period the stomach usually retained the medicine and often produced favorable effect before the spasm recurred, when recourse must again be had to the hot bath &c. Second bleeding is sometimes necessary.

In administering Mr. Corbyn's remedy to natives, I have found it very advantageous to mix it with as small a quantity of water as possible, and to restrain them (if possible) from swallowing any thing for two hours after it has been taken.

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### No. 9.

*Extract of a letter from Surgeon David Craw, to  
Dr. And. Jukes.*

Seroor, 30th July 1818.

I have only this moment received your very agreeable letter of the 25th. It would have given me very great pleasure to have given  
you



you the most ample reply to your laudable enquiries respecting the present highly alarming and *anomalous* epidemic; but the combined causes of want of health and want of employment have very much contracted the sphere of my own personal observation on the subject. Such information however as an occasional visit to the hospital of H. M. 65th regiment, a few cases amongst my own domestics, and a constant conversation on the disease with all of my professional friends at Seroor, can afford, is very much at your service.

In the first place, it will be necessary to premise that the disease is of a most multiform nature, and particularly that there appears to be a very marked difference, generally, as affecting the Native and the European. Curtis gives the best description of it, and Johnson I think has copied him verbatim. Girdlestone, Clarke and Bontius may also be perused with advantage. Curtis describes the disease precisely as it made its appearance here at first amongst the Natives: as affecting the Europeans it is somewhat different; and now it has changed its type in the former class, bringing it nearer to that as exhibited in the latter. The Natives of all casts and temperaments, young and old, and strong and weak (and the same may be said of the Europeans) are equally liable  
to

to the attack of the disease. After a few watery clay colored evacuations from the stomach and bowels, with acute burning pain at the epigastrium, and considerable tenesmus; spasms of the muscles of the legs, thighs and abdomen ensue; and these are speedily followed by a weak, fluttering, imperceptible pulse, and deadly coldness of the extremities and indeed of the whole body, the vital powers sink rapidly, the patient is drenched with cold sweat, the palms of the hands become corrugated, the cuticle being raised into folds as if it had been a long while immersed in hot water, the eyes are sunk in the orbits and are surrounded by a very ominous livid circle, and death closes the scene. With the Natives therefore the rapid approach of great debility is alone to be feared. The calomel and laudanum plan, with the most powerful diffusible stimuli and the hot bath, have been eminently successful; and if application is made within 4 or 6 hours from the first appearance of the disease, the cure is almost certainly effected. It does not appear very difficult to allay the stomach and bowels; and it is seldom necessary to repeat the calomel more than two or three times, provided the first dose has been rejected: but where the stomach is more irritable, the *calomel and solid opium* with *confectio rosæ formæ boli*, is found to answer better than the fluid laudanum.



laudanum. The bath after the exhibition of this medicine has the most beneficial effect, and quiets all the symptoms in a wonderful manner. Notwithstanding the early exhibition of the remedies, the disease *yet appears to run through a kind of course, for the symptoms of coldness and total absence of pulse frequently take place where there appears to have been but little disturbance in the primæ viæ.* Wine, æther, hot spirits and water, compound spirits of ammonia, and oil of cinnamon, with a repetition of the bath and constant friction of the limbs are all in their turn necessary when the alarming symptoms have come on. Notwithstanding the unremitted application of these remedies, the patient may become comatose, indicating blisters and sinapisms; but this is almost invariably a fatal symptom, tho' I have my doubts whether this is not sometimes induced by the too liberal use of the stimuli. Ischuria or Dysuria is also a constant symptom, but generally relieved by the bath, and certainly by the catheter.

The disease as affecting many of the Europeans appears to me to be a true *Tetanus*, and tho' my professional friends (as it appears to me misled by the irritability of the stomach and bowels) will not at all accord with me in my views, I regard our present epidemic in all classes to be more nearly allied to *Tetanus* than to *Cholera*.

Cholera. The last is surely a misnomer as applied to a disease the principal characteristic of which is an entire want of *κολη* in the evacuations, and should it be your lot to see the affection amongst Europeans, I request your attention to this subject. There have been I think about 70 or 80 of the 65th already attacked, and perhaps 30 or 40 in the horse and foot artillery; the former corps has lost I think 6 men, and the two latter combined 4 or 5. Within the last few days it has made its appearance in the 22d dragoons; 10 or 12 have been attacked, and two I think died. In these corps the disease makes its appearance sometimes by the same affection of the stomach and bowels as in the Natives, frequently with spasm in the feet, legs, abdominal muscles or arms; but in all, the spasmodic affection is the preeminent one, headache, pain in the eyes, excruciating pain at the *scrobiculus cordis* (a pathognomic symptom of Tetanus) quick-full-hard pulse (but labouring and oppressed according to the violence of the spasms), retention or difficulty of voiding the urine, strong and violent spasm drawing up the legs, rigidly contracting the arms and fingers, bending the body forwards or backwards, or laterally, the patient at the same time exerting such physical strength as requires half a dozen of  
men



men to hold him on his cot. I have already said that the intestinal evacuations are watery and clay coloured, this must not be lost sight of as indicating a want of bile, the vomitings are somewhat of the same kind, attended with eructations while the bowels are distended with flatus. These combined with a very distressing tenesmus, not to be allayed by Anodyne Enemas, strongly point out that nature requires relief by the bowels. After the 2d day that the disease made its appearance in the 65th, Dr. Burrell commenced blood letting with the most decided advantage, this has therefore become the first grand remedy amongst the Europeans, and in which he has been followed by the practitioners in other European corps, and with the same result. Bleeding quoad vires, the calomel and opiate, the hot bath, warm clothing and frictions spirituous or anodyne, form the chain of treatment in the European hospitals here; and these are repeated again and again as the symptoms may seem to demand. Under this system, and *early* application for relief, I think the disease is not fatal in a greater proportion than 1 in 100 cases. I am convinced that after bleeding and the bath, a powerful purgative and a strong cathartic enema would have a much better effect than narcotics; the difficulty would be in getting the medicine to stay on the stomach, but this  
surely

surely might be managed without powerful opiates; for in all cases after the patient has been dosed into a state of stupor, it is necessary to open the bowels, and a bilious motion is in my opinion the best criterion of his safety. The calomel alone would answer the purpose, I have no doubt, while it rapidly *mercurializes* the system. One dose of 15 grains often brings an ptyalism in 24 hours, and all the patients complain of their mouths being affected on the 2d day. On the state of the atmosphere and the immediate exciting cause or causes of this disease, it would perhaps be unavailing to form any conjecture. On the former, as in all other epidemics, certainly so; tho' I have little doubt that any check given to perspiration, and particularly exposure to a current of air, especially the cold air of the night, is a powerfully exciting cause. Warm clothing and excluding the chill breeze after sunset form our principal plan of preservation. The natives and soldiers you know are not over cautious in these particulars. There is amongst us all at this station, however, a wonderful predisposition to disease; some are affected with severe headache, pains of the eyes, rheumatism, and spasmodic affection of the neck and loins and legs; others with pains at the stomach, nausea, griping pains or twitchings in the abdominal



dominal muscles, want of appetite, and irregularity in the alvine discharge ; and some with sudden catchings in the muscles of the legs when walking, or a subsultus tendinum in the arms and fingers.

It is yet a doubtful matter whether the disease is contagious. At Poona they allege, that the few cases which have yet been seen there, are strangers who have brought the disease with them: but what I am now going to relate may seem to prove strongly its contagious nature. Every one of the native attendants in the 65th hospital, and they are 30 in number, have been attacked with the disease. Now, on any other supposition this is perfectly unaccountable. Could the effluvia arising from a number of patients condensed into a small space have excited the disease in the attendants? I have little doubt of it. I do not think that more than two or three bodies have been opened after death; and tho' these died in a comatose state, inspection of the brain was neglected as being too troublesome! In all, the appearances in the abdomen were pretty much alike, the bowels extremely distended with air, *the gall bladder and ducts tinged with bile, and marks of congestion of blood in the hepatic system, the lower bowels coated with a pasty, clay coloured, adhesive, slightly feculent matter.*

ter. I put very little faith however in the careless and hurried inspection of these bodies; a more minute dissection will be requisite to enable us to draw any useful inferences. That there is such a spasm however of the duodenum, as closes up the common duct, there can be no doubt; and in removing this, I know nothing so useful as cathartics, particularly the mercurial. You will observe that the flatulency and real obstipation (notwithstanding the apparent purging), and want of bile in the bowels, form exactly the Cholera sicca of Sydenham; but such diseases have not the slightest connection with cholera, secundum "summam doctoris auctoritatem et urbis." If I have been successful in conveying intelligibly (tho' hastily) to you what I myself have seen and heard, you will draw the following conclusions.

1st That the epidemic amongst the Natives has been attended with alarming debility rapidly supervening to the affection of the stomach and bowels; and has been successfully treated as already mentioned.

2d That amongst the Europeans it has varied considerably in its appearances and that bleeding has been highly useful.

3d That in the former class the type is now so  
far



far changed as to require, or at least to indicate blood letting—and

4th That all ages and all sexes, the young and the old, the stout and plethoric, the puny and debilitated, are alike liable to the disease.

You have seen that I think the disease, as it has exhibited itself in the European corps, is nearly allied to tetanus; I may be mistaken, but I extend the same observation to the class of Natives. Various symptoms in different classes of men must be expected; all diseases afford them. Read carefully the cases of tetanus in Dr. Hamilton's work on purgatives, and you will have a good idea of some of those in this extraordinary epidemic. But I must tell you that we have, too, cases of the common cholera; and should we not have had them, tho' free from this wide spreading disease? I had two or three hundred cases last rains at Caranja.

I have now endeavoured to comply (as fully as I am able) with your request, and if you are disappointed, you must attribute the disappointment entirely to my want of opportunity, and receive my desire to give information as an equivalent to its being amply bestowed if it were in my power; this I am sure you will kindly do. Laying aside theory, you may rest assured in the  
*plan*

*plan of cure*, and at ease in your mind on this head, you may call the disease by any name you please. Tetanus epidemicus or indicus, convulsio indica; Cholera sicca, indica, spasmodica vel flatulenta, &c.

You must not be surprised at the variety of the descriptions you may receive from various individuals; the epidemic will comprehend them all, however different. We have had but a few slight showers here this monsoon; and it remains to be seen, whether the disease can be washed away by a deluge, or whether cold and moisture may prove more powerful exciting causes. Its commencement in Bengal last rains, and its duration through the cold and hot seasons, would appear to deprive us of any rational hope of the first event. “There are more things in heaven and earth, than are dreamt of in our philosophy.”

P. S. I must not omit, that in a few cases the muscles of the face have also been spasmodically affected; and in one woman the jaw was for a time firmly locked. Amongst the officers at this station, only two or three of the 65th have been affected. The disease I think is evidently on the decline.



## No. 10.

*Remarks and observations on cases of Cholera that occurred in H. M. 22d Dragoons at Se-roor; by A. S. Campbell Esq. Assistant Surgeon in charge.*

The 22d Dragoons were remarkably healthy during the greater part of last month: towards the close of it a great increase in the number of the sick took place, from the prevalence of the Cholera Morbus, three cases of which in our hospital have proved fatal. These men however were admitted in a state which rendered blood-letting (the most effectual remedy in this complaint) quite inadmissible; as they were several hours sick before they reported themselves to me; and were of weak relaxed habits of body. The following were the symptoms in the course of the disease in the fatal cases. A sunk pulse, universal coldness of the body, with profuse sweating, violent spasms in the extremities, extending to the abdominal muscles, severe vomiting and purging of matter like conjee water, a desire for cold drink and an aversion to warm: in two or three hours after admission the spasms and vomiting disappeared, and the patients sunk into a state from which no stimulants could rouse them. The hands then got a bleached appearance and  
the

the nails became blue, the eyes sunk in the orbits, and the eyelids became of a livid appearance. The pulse now could not be felt at the wrist, the countenance was expressive of the greatest anguish, and the breathing very laborious: in this state the patient continued till relieved by death. One of the patients fell frequently into fainting fits before he died, and two were attacked with hiccough.

The following treatment in these cases was employed. The patient was frequently immersed in the hot bath, which never failed to have a temporary good effect, as the pulse was always raised after he was brought out. This was more apparent after the pulse had disappeared at the wrist before immersion, which became quite perceptible afterwards. The effect however was very temporary, as the pulse again disappeared in a few minutes, notwithstanding all that could be done by frictions with hot arrack and the internal use of the most powerful stimulants to restore and keep up the circulation. The scruple dose of calomel, with Corbyn's anodyne draught, was given every two hours; but when the spasms and vomiting had ceased, the laudanum was omitted, the calomel continued and the stimulants more frequently given. Bloodletting, as



I said before, could not be employed from the state in which these three men were brought to me.

On the dissection of the first fatal case, the following were the appearances. In the liver a considerable congestion had take place, which was apparent from its unusually dark color and the tenseness of it coat. The stomach was filled with a thick whiteish matter, like conjee water, similar to what had been vomited before death. Very slight marks of inflammation existed on the inner coat of the stomach, but so very slight that they could hardly be observed. The small intestines were of a lighter color than in the heathly state, and distended with air.

I had time to examine only one of the remaining bodies from my having to be so much in the hospital to superintend the management of the other cases of the disease. In the other subject the same marks of congestion were not present, the gall bladder was however in the same manner distended with healthy bile, none was found in the biliary ducts as was the case in the former subject, although I forgot to mention it when speaking of the morbid appearances. The stomach and intestines were in the same state, with the exception of the colon, which in this subject

subject was contracted to an unusually small size (in circumference).

The lungs were unsound, in this case having tubercles upon them, in the former no morbid appearance was found in the chest.

The cases which terminated favourably presented very different symptoms, as I had seen the whole of the men immediately after they had been attacked. They came in with the following symptoms. A quick full pulse, much thirst, and, in one or two instances, much pain in the head. There was no sweating; they in general complained of a numbness in some part of the extremities, before the spasms came on. Vomiting and purging of the whitish matter next made its appearance, and the cramps became general. *In one case only had the egesta any appearance of having bile upon them, and this was a very mild one.*

The patients were immediately bled nearly ad deliquium, and afterwards put into the warm bath, and the calomel and opium given (latterly I preferred giving the opium in the solid form; as in every case I found that it remained better on the stomach, and with the best effect). If the bolus was vomited, it was immediately repeated, and if the spasms were very severe an anodyne clyster



clyster was given, and the blister applied to the abdominal region. On putting the patient to bed, he invariably expressed himself as being much relieved, and generally fell asleep if not prevented by the violence of the spasms. In two or three hours, the bolus was repeated, which *always* induced sleep. The pulse became always *fuller* after *venesection*, although in one case I took forty eight ounces of blood.

After the patient awoke, he invariably said he had no complaint, excepting perhaps a little pain in the head and now and then slight spasms. Pure bile was brought up by vomiting, and on the exhibition of a purge passed by stool. I have not found that the patients have recovered the effects of the complaint so soon as has been represented. They are all at present in hospital convalescent.

Numbers of the dooly bearers and other camp followers were attacked with the disease: I lost altogether about ten natives, and cured a proportionate number.

ALLCOURT CAMPBELL,

*Assistant Surgeon*

*in Medical charge.*

No. 11.

## No. 11.

*Extract of a Letter from Mr. Assistant Surgeon  
Tod, to Dr. Milne.*

Camp at Chumargoodee, 1st August 1818.

“ I had the pleasure to receive your's of the 26th ultimo, two days ago, regarding the Cholera Morbus, which has been committing such havock in some parts of the country.

It has been in our camp ; but the number of cases, I am happy to say, have been less numerous, than could have been anticipated; and those, who have been attacked, have invariably been such, as were least comfortably sheltered from the weather. In our detachment, only three have had the disease, two of whom recovered, and the third (a very old Beastie) died ; although he was brought to the hospital in less than an hour after the attack.

Amongst the auxiliary horse, the cases have been more numerous; but the town's people have suffered more than either.

A great peculiarity in this disease, is the sudden manner, in which it commences. In several instances, the patient has dropt down quite insensible, without any previous warning; and in less  
than



than fifteen minutes (although he has recovered a little from the first shock), the extremities have been as cold as those of a dead body: another circumstance is equally remarkable, as it is entirely at variance with the description of the disease, as it is seen in Europe, that is, the vomiting has in many cases not been present at all, and in all those, where it did take place, the matter vomited, as well as that passed by stool, has not been in the least bilious, but a thin whitish fluid resembling congee. The principal symptoms have been violent pain in the bowels, and spasmodic contractions, attended with great pain in the extremities, which have required an almost incredible quantity of medicine to remove them.

In a number of those, that came first under my care, very large worms were passed, both by vomit and stool; and as their being discharged seemed to give great relief, I was in doubt for some time, whether they were not in part a cause of the disease; but from further experience I am now convinced, they were entirely accidental; and were brought off by the large doses of calomel necessary to cure the disease. The way in which I have administered the medicine is by giving calomel, one scruple, and washing it down with  
Tinct

Tinct. Opü, one dram, and water, two ounces; and when the first dose has been rejected, I have repeated the dose at an hour's interval, which generally has succeeded, although in a few cases I have been under the necessity of giving it three or four times. Frequently when the disease was unattended with vomiting, or where that has been easily checked, the spasmodic pains in the bowels and extremities have remained and then I gave Tinct. Opü and æther, each half a dram every hour, until they produced relief. I have had altogether about 100 cases, in which the calomel and opium have been given; and I may add with complete success; for, although 10 or 12 have died, they have either been such old men, that no reasonable hope could be entertained of their recovery from the commencement; or if young have been brought from the town with the disease in so advanced a stage, as to be beyond the power of any medicine. The disease appears to be leaving us now, as we have seldom more than one instance of it in the course of the day, and the symptoms are much milder than when it first commenced.

I am, my dear Sir,

Your very truly

(Signed)

J. TOD,

No. 12.



## No. 12.

*Extract of a Letter from Mr. Assistant Surgeon  
Milward, to Dr. Milne.*

Ahmednuggur, 2d August 1818.

“ Since I had the pleasure to receive your last letter, a great number of cases of Cholera Morbus come daily under my observation ; to relate all the symptoms would be merely repeating what we have heard so often, with the exception of the worms, which 8 out of 10 patients have passed. 1,2,3, and sometimes four have come from one person, and generally *per ano*. One patient threw 3 off her stomach in the course of one hour. The instant these creatures are voided the sufferer is relieved from the strong burning sensation in the abdomen. I will venture now to give my treatment, with my object for making the addition to Mr. Corbyn's. There are two great objects to be obtained, necessary for the recovery of the patient ; first, to allay the vomiting and purging : 2ndly, to restore the pulse, and heat to the extremities, and produce sleep. In order to effect these, I have, in addition to one scruple of calomel, put antimon, powder gr. v, and added to the draught laid down, Sp. æther, Nitr. one dram. In the course of 2 hours give calomel  
gr.

gr. x, James's powder gr. v, with half the draught and camphor mixture instead of plain water, and repeat this, as it may be required. By this treatment, I do assure you, that my loss, since it's commencement, only amounts to five; and when you consider the villagers never apply, till the case is desperate, I trust you will not think the number great. The best laxative to be used, I have found to be magnes. carb., four scruples. It remains on the stomach, and generally causes two or three plentiful evacuations. I really should not have presumed so far as to offer my practice to you without your encouragement and request to let you know how I succeeded. I will now give you a case of a sepoy of my battalion, who on returning from Seroor was attacked at Ranjangaum on the night of the 30th of July. He was brought to me in a senseless state about 12 o'clock, August 1st noon. His extremities quite cold, pulse not to be felt, and groaned as if in violent pain, with vomiting, his eyes sunk in their orbits; and he was altogether in a dangerous state. I immediately gave my powder with the draught, which made him drowsy (but the heat did not return) and allayed the vomiting. At 4 p. m. I gave him calomel x gr. and James's powder gr. v, with the draught, camphor mixture instead of water, and



and continually applied hot bottles to every part of the body (having no convenience for bathing) till 8 p. m. when I found him in statu quo. I knew there was no time to be lost, and immediately gave him calomel one scruple, James powder gr. x, five more than usual, with camphor mixture draught, with the hot bottles, and remained with him till 12 o'clock, midnight; when the heat and pulse slightly returned, and perspiration diffused all over the body. On the 2d, I gave him 4 scruples magnesia, and he is now in a fair way to recover. I attribute a great deal to the pulv. antim. in producing moisture and heat; and certainly it is the cause of the worms being voided so soon.

I am, Sir,

Yours very faithfully

EDW. MILWOOD,

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No. 13.

*Extract of a letter from Mr. Assistant Surgeon Moyle, to Dr. Milne.*

3d August 1818.

“ The disease I am happy to say, is disappearing rapidly: and the rain, which has fallen in great abundance, has been attended with the  
beneficial

beneficial effects of rendering the atmosphere more pure.

I purpose in the course of a few days to transmit a statement of the numbers where blood-letting was had recourse to, as well as of those, that recovered under the means recommended by Johnson. In such cases of the existing Cholera, where the pulse is not much below the natural one and where the spasms are frequent and severe, I conceive venesection the most active remedy. The expressions from the sufferers under the operation justify the assertion, the instant the vein is opened the pulse invariably rises, and the spasms frequently cease altogether. From the variety of cases I have met with, since it's commencement, I cannot help thinking the disease in question intimately connected with tetanus.

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No. 14.

*Extract of a letter from Dr. Milne to George Ogilvy Esq. Sec. to the Medical Board.*

Camp near Poona 5th August 1818.

The troops at Poonah and at Satara remain healthy; but the inhabitants of the former city



city continue to suffer: from 20 to 30 daily are seized, but the casualties are few; and the disease is much milder than when it commenced.

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No. 15.

*Extract of a letter from Mr. Assistant Surgeon  
Wallace, to Dr. Milne.*

Seroor, 3d. August 1818.

The Cholera has nearly left us. They have still a few cases amongst the Europeans, and one or two daily amongst the bazar people; but those, that I have seen, are slighter than they were.

The state of the atmosphere is however, certainly not salutary at present; most people are complaining, either of febrile symptoms or a derangement of the bowels.

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No. 16.

*Extract of a letter from Mr. Assistant Surgeon  
Richards, to Dr. Milne.*

Punderpoor, 3d August 1818.

The Cholera Morbus still continues to make  
its

its appearance here, but within the last few days it certainly has assumed a milder form. Up to this morning, the number of admissions amounts to one hundred and seventy, out of which number twenty eight casualties have occurred.

The extent of my assistance is limited, in consequence of three of my hospital attendants, including my first dresser, being attacked with the Cholera Morbus; but I am happy to say that beyond our encampment, there is now but little occasion for medicines. In the town of Punderpoor, there has not been a casualty from the Cholera, the last three days; and we have had but two within the last five.

Four Europeans of the detachment of Artillery have been attacked with the disease; the first died in a few hours after I saw him. I examined his body, and found a very considerable congestion of blood in the whole of the abdominal viscera, no inflammation; the stomach partly filled with the medicines he had taken; the bowels empty, but considerably inflated; the spleen somewhat enlarged and of a very dark colour; the gall bladder distended with dark coloured viscid bile, none in the ducts; the urinary bladder so much contracted as to completely obliterate its cavity. The other three men, fully aware of the danger of neglecting themselves



selves applied to me in the early stage of the disease; they were immediately bled, and the calomel and laudanum administered, and are all doing well. We have had some heavy rain, which has cooled the atmosphere.

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No. 17.

*Extract of a Letter from Mr. Assistant Surgeon  
White to Dr. Milne.*

Seroor, 4th August 1818.

In my last I omitted to mention, that I had been present at the dissection of two patients, who died of Cholera Morbus; one an European of the foot artillery who had been Mr. Moyle's patient; the other, a seapoy of the light battalion, consequently a patient of my own. I shall now present you with a short account of the appearances in both cases; but in the first place premise, that I do not think, in either of them, we meet with a fair picture of what is to be expected in cases of acute cholera spasmodica; wherein the life of the patient is terminated within 18 hours (considerably sooner in general); in which no favorable change in the disease has been observed; but in which the cold-  
ness

ness and want of pulse have continued uniform. For in both of these cases had a favorable change been observed. The European lived three days or more from the attack of the disease; warmth, a natural pulse, perspiration, and yellow coloured stools, had returned; but a degree of coma came on, for which he was bled; and I believe he died about the third day, coldness having reappeared. The sepoy was attacked at day light, admitted at 11 o'clock and died at 4 the following evening. I saw him a few hours before death, and could just perceive his pulse; vomiting was completely suppressed, and purging nearly so, although tenesmus urged him to remain almost continually upon the stool. However, I thought him in a fair way to recover, and was astonished a few hours after to receive a report of his death.

Upon opening the abdomen, the most striking appearance was the enormous distension of the stomach and bowels, not with air, for they were nearly throughout filled with something of a consistence intermediate between that of a fluid and solid; there was not much of bloody turgescence upon their surface, but they wanted the moisture and glossy appearance of health. The liver was much enlarged, apparently from the quantity of blood contained in its vessels; and in

one



one part of its convex surface there was a considerable extravasation of blood. The gall bladder was filled with bile, and projecting beyond the edge of the liver; the bile was a very dark colour, and the gall ducts were pervious. On cutting into the stomach and intestines the stomach was *filled* with an immense quantity of half digested rice and meat; the contents of the small intestines were dark coloured, apparently from an admixture of bile. The contents of the large resembled in colour what had been evacuated per anum before death, i. e. of a whitish colour; and parts of a tape worm were found, joints of which had been discharged, while the patient was alive. The bladder was quite empty and wholly sunk into the pelvis; I thought the kidneys were of a diminutive size. In the chest, the lungs were collapsed so much, that they hardly appeared to fill one third of the cavity. The left portion of them were marked with several black spots; but whether these were recent, I could not determine. There was no water in the pericardium. In the European, the appearances of the chest were exactly similar to the above, with the exception of the black coloured spots. The stomach and intestines too, were much distended, but with wind only, as appeared from their collapsing the moment a puncture was made into them; but the  
veins

veins on the outside of both, as well as those of the mesentery and mesicolon were turgid with blood, so was the liver, and the gall bladder was, as in the other case, full of bile. The urinary bladder was completely empty. I shall conclude with remarking, that, from the contents of the small intestines in the seapoy being dark coloured, while those of the large retained the light colour which marks all the discharges in this disease, it appears to me, that in this case the disease was proceeding to a favourable termination, which would have been completed had the patient's strength been sufficient; but that while these changes were going forward, his friends had indulged him with an immoderate quantity of food; which, overloading the stomach, caused such debility, as arrested this progress, and was the immediate cause of death. It is impossible to account otherwise for the quantity of food found in the stomach; as this would have been evacuated by the free vomiting that took place in the early stages of the disease, had it been introduced before the commencement of the disease; and an opportunity was given to the friends for exercising such imprudence, by the native Doctor having gone to a grand festival, at the time, instituted for the appeasing of the Deity and averting the then existing calamity.



The disease continues to present a milder aspect, and occurs now but rarely: loss of pulse and coldness are seldom observed; and often it first shews itself by severe pain of the abdomen attended with cramps of the lower extremities, sometimes by a sudden giddiness and confusion, loss of memory and vomiting, attended also with cramps: indeed but for these cramps, I think it would be impossible to distinguish this stage from fever, at the beginning; and these cases are attended with hardly any danger. The only bad cases that are now brought to the hospital are men who have been ill in the Bazar and neglected for two, three, or four days.

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No. 18.

*Copy of a letter from Dr. Burrell, of H. M's.  
65th Regiment, to Dr. Milne.*

Seroor 10th August 1818.

To

J. MILNE Esq.

*Acting S. Surgeon*

DEAR SIR,

As dissections of cases of Cholera Morbus were not sent you along with my statement of the

28th

28th ultimo, I beg to send you a few remarks on this subject.

As congestion has been found in all our former fatal causes, I yesterday had another demonstrative instance of the eligibility of bleeding in Cholera.

John Stokes, of the 65th regiment, a man recovered from chronic syphilis, was attacked in our wards, with vomiting and purging at 8 P. M. of the 8th instant. When seen, his hands and feet were cold, with some rigidity; under these circumstances, and he being of a weakly habit, bleeding ( I may say unfortunately ) was not used. The usual remedies, with the hot bath, were tried. He died on the 9th inst. at 2. P. M.

In company with Dr. Whyte of the 2d N. I. and Assistant Surgeon O'Reilly 65th regt., I opened the body. The liver was found of a dark colour, distended with blood, and the gall bladder full of bile. The spleen of an extremely blue colour. The omentum inflamed, and veins filled in every part. The small arteries of the intestines of a lively red: and the colon contracted, through its length, to the size of the middle finger; and its calibre so small, as hardly to allow a scalpel handle to be introduced.

The veins of the stomach more particularly  
arrested



arrested our attention: on the great curvature they were of an intermediate size between a crow's and a common quill; these turgid viens were more apparent internally, and the most forcible injection could not have more completely filled the vessels. The mesenteric vessels, as well as the vessels of every other internal membrane, partook of this appearance of formerly increased action. The lungs were dark and suffused with blood, this most probably is the cause of the stertorous and laboured breathing present in almost every fatal case.

From former dissections, and the appearances in this case, little doubt ought to arise regarding the exigence of bleeding in almost every case; but more especially in the first hours of attack. If even during the cold and rigid state of the limbs, should the pulse rise in the hot bath, which it generally does, we ought not to hesitate in opening a vien; as recovery from this stage is most precarious, and every experiment may, therefore, be tried.

As dissection in this disease has shown, and will in every case show turgidity, if not inflammation, of the vessels of the internal parts, no hesitation as to what line of practice is best, should harbour in the minds of medical men during the prevalence of so dreadful a disease.

Under

Under this idea of increase of action internally, and consequent want of balance in the circulation, from which arises the coldness and shrinking of the external parts, I commenced the bleeding system; and of the cases admitted of Cholera, since the 21st ultimo, up to the 10th August, the casualties run thus.

Bled.... 88 ..... Dead.. 2.

Not bled.... 12 ..... dead .. 8.

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Total admissions,.. 100. .... deaths 10.

Our cases of dysentery in the chronic stage in the hospital, have been aggravated in many instances; appearing as if the epidemic gave a peculiar character of symptoms to the usual endemic diseases.

Relapses of cholera have not been unfrequent; and the regularity of the bowels must be strictly attended to in the stages of convalescence.

Some of these relapses require the same treatment, as the original attacks.

In one European woman the attack proved fatal.



## No. 19.

*Extract of a letter from Mr. Assistant Surgeon  
White, to Dr. Milne.*

Seroor 11th August 1818.

It was my fortune to be present at the dissection of two Europeans, who died from cholera; one a private of the 65th, the other a foot artillery man.

The man of the 65th had been in the hospital for some time on account of a chronic syphilitic complaint. He was attacked at 8 o'clock P. M. with cholera spasmodica, attended with great debility, coldness, and want of pulse; was not bled, and died at 3 P. M. the following day, 19 hours after the first attack.

In the abdomen, the omentum was nicely spread over its contents, free from fat, and of a dark colour. The liver increased in size; on cutting into it's substance, the mouths of it's vessels were seen distended, wide, and poured out a considerable quantity of blood. Vesica fellis pretty full; stomach very much so, and of so dark a colour, that on a superficial examination it might be thought in a state of gangrene. The small intestines too presented a similar appearance, and might easily give rise to a similar mistake,

take; but both were perfectly adhesive and firm; and by drawing the finger over their surface, innumerable small veins might be seen, running in all directions, as in a preparation nicely injected with wax. The intestines were moderately distended with some fluid, and a worm could be felt. What surprised us greatly was the appearance of the colon, contracted throughout its whole extent, from the *caput cæcum* to the sigmoid flexure, so much as to bring the sides of its internal surface in close contact, from this contraction of its fibres feeling thick and solid, not exceeding in circumference my middle finger; this could only have been caused by a violent spasm before death.

I must now revert to the stomach and mesentery, and describe a most extraordinary and beautiful appearance; one which I imagine will invariably be found, in a greater or less degree, in every case of cholera, where the patient has died soon after the first attack of that disease, i. e. where death can be considered the consequence of its first attack. Besides the small veins, before taken notice of, and which I supposed to impart the dark colour of the stomach, all its larger veins were distended with blood to a really enormous size; the circumference of the *venæ breves*, being fully as large as crow quills, running



ning upon the upper and lower, or concave and convex surfaces in a pretty straight direction; and in the other parts, by their convolutions resembling a closely woven network, particularly when held up to the light. The veins of the mesentery were turgid in the same manner, the circumference of many of them being nearly equal to that of the *venæ breves*. No injection, however successful, could have represented more correctly the course of the veins in these parts. The mesocolon was pale, resembling in this the contracted colon. On cutting into the stomach, a large quantity of a dark looking fluid was found; and on emptying it, we discovered a considerable quantity of calomel, lying amongst it's rugæ, near the pylorus, quite undissolved; from which it would appear, that the above fluid is of a nature totally different from the gastric juice. The pericardium contained no fluid. The bladder was empty. Indeed all the secretions seem almost wholly suppressed in this disease; excepting those into the stomach and intestines, which are much altered in quality. The lungs were much darker in colour than natural, approaching to that of the liver; and by drawing the finger over any portion of them, the veins were made apparent, distended with black blood.

The

The artillery man had been attacked at 2 a. m. admitted at 6, with symptoms like those of the above patient; was not bled; and died at 4 p. m. the following day. He had been comatose for about 24 hours before his death.

In the thorax, the pericardium was empty; there were several old adhesions of the lungs to the pleura; the lungs themselves were of a dark colour, as in the above case.

Abdomen—liver increased in size; vesica fellis containing a little bile; stomach distended with fluid, and of a dark colour, but none of its large veins distended, like those in the former case, although all the small veins were turgid in a similar manner. The small intestines were dark coloured, and dryer than natural. The mesentery not strikingly altered in appearance, but a portion of the ileum, to the extent of about 18 inches, above its insertion into the *cæcum caput*, with its corresponding mesentery, was perfectly black and gangrenous in appearance. We pronounced them so at the time; but, upon after reflection, I think the gut possessed too much tenacity of texture; and this appearance might have been given by extravasation, which, I believe, is difficult to be distinguished at all times from the former state. The colon throughout was much  
more



more diseased than either the stomach or upper portion of the small intestines ; although not so much so as the portion of the ileum just taken notice of. It appeared in a state intermediate between venous congestion and arterial inflammation, indeed its colour and whole appearance as well as that of the mesocolon, was of that mixed nature, that I do not know a better method or mode of expression, whereby to convey an idea of it ; and here I may remark, that in this disease, I think the former state runs frequently into the latter. The bladder was almost empty, the fluid contained in the stomach was of a still darker colour, than was that of the former patient.

On examining the upper part of the cranium, we thought the dura mater inflamed ; the trunks of large blood vessels were distinctly seen through it, and on removing this membrane, we were presented with a beautiful sight—the veins of the pia mater distended, as if ready to burst, and running in all directions amongst the convolutions of the upper hemisphere. The increase of size was perfectly sufficient to account for the coma which had taken place. Several small arteries were seen ; but I think not more than are usually found ; certainly not enough for us to infer, that

the

the membrane had been inflamed. No serum was found in the ventricles.

The above appearances seem to me strongly indicative of the propriety of blood-letting. I have not yet tried it; and I believe it has not yet been used by any practitioner here in cholera, attended with constant vomiting and purging of a white coloured watery fluid, coldness of the surface, and want of pulse. In the proximate cause it appears to resemble strongly what Dr. Armstrong in a late publication, has designated "Congestive Typhus" "attended with an enfeebled action of the heart and arteries, an accumulation of blood in the venous system", distinguished by the "hot stage being not at all or only imperfectly developed, and by signs of congestion in the internal organs", which state, he says, is attended with "great apparent debility". But instead of considering this debility as real, owing to the direct influence of contagion as a sedative; instead of using stimulants, he recommends "venesection, after which the pulse generally rises, the warm bath and calomel in a scruple dose, repeating smaller doses, three or four times, the first day". He gives great praise to calomel, as an "equalizer of the circulation"; says, that when the skin was even cold and shrunk, it made the skin warm and reddish, the pulse soft, full and strong. From the great resemblance  
between



between some of the symptoms of these two diseases; from the great success, which attended Dr. Armstrong's treatment of a disease in which debility has hitherto been considered the most prominent symptom, and stimulants the only cure, as well as from the appearances on dissection, related above, there is every reason, I think, to expect beneficial effects from blood-letting, even in the cold cases of this disease; and it is my intention to give it a trial soon.

The only alteration I have yet tried, in the treatment of cholera, is to give every half hour after the first large dose of calomel retained in the stomach, a pill containing, cal. 2 gr. opium  $1\frac{1}{2}$  gr., until heat, a pulse, or natural stool is procured. Very often after the return of heat or a pulse, from 24 to 48 hours elapse; and before a red or yellow coloured stool is seen; although the disease is evidently conquered, and the patient improving. In these cases the pills are repeated at the interval of 3 or 4 hours. From the short trial I have given the above plan, I possess a very high opinion of it's utility. To prevent relapses, it appears necessary to continue some time the influence of mercury in a regular, constant, and steady manner, giving by this means a stimulus to the action of the heart and arteries, keeping up a de-  
termination

termination to the surface, as well as the regular circulation through the liver. Many of the diffusive stimuli will produce the same effects in a quicker apparent manner, as for instance spirit. ammoniæ arom., or æther rectific.; but I am convinced, that none of them will produce such lasting and truly beneficial effects.

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No. 20.

*Copy of a letter from Mr. Surgeon Longdill, of the 4th regiment Madras Lt. Cavalry to Dr. Milne.*

To

JOHN MILNE, Esq.

*Acting Superintending Surgeon,*

DECCAN.

SIR,

I have the honor to forward you a General Return of all cases of spasmodic cholera which have come under my care, since it first appeared at this place.

The fatal cases were those, in which the patients were brought to me with cold extremities, and no pulse to be felt at the wrist; and although the calomel and opium stopt the vomiting, yet I never could restore the pulse or procure warmth in the hands and feet, altho' the warm bath, and frictions with hot spirits over the whole body, and warm drinks were given. In all the other cases,



cases, there was some warmth in feet and hands, and a little pulse to be felt; and they did well. In only two cases, and those of dooly bearers, whom I got on the immediate attack, did I use the lancet, and that with considerable benefit, as it diminished very much the spasms of the stomach, and the calomel and opium remained: in a short time the patients fell asleep and into a gentle perspiration, and hardly any thing else was required but a little mild cordial, such as warm brandy and water. On the 3d day, I, in general, gave all the patients a dose of castor oil, as the laudanum had produced constipation; and they all complained of the mouth being affected.

My general plan of treatment was to give the dose recommended by Mr. Corbyn; sometimes it was immediately thrown up, I then waited for an hour and gave another, with the warm bath; which in general relieved the patients; after which they required little else than cordials, and a gentle laxative.

I have the honor to be

Sir,

your very obedient Servant,

B. P. LONGDILL,

*Surg. 4th Cavalry.*

SEROOR,

17th AUGUST 1818.

No. 21.

## No. 21.

*Extract of a letter from Mr. Surgeon Gordon  
to Geo. Ogilvy Esq. Sec. Med. Board.*

Satara, 20th August 1818.

To

GEORGE OGILVY Esq.

*Secretary to the Medical Board,*

B O M B A Y,

SIR,

It appears to me that this epidemic as it has shewn itself at Satara, is much modified and very different from that which Mr. Corbyn has described in his letter, and from common cholera morbus. I pretend not to say how it has been modified, but it does appear to me that the epidemic now prevalent here, generally attacks in the first place the brain, and that the stomach is in most cases only secondarily affected. This I consider the nature of the disease in general, altho' there certainly are cases in which the stomach is primarily and principally concerned; but even when this is the case, I think we have chiefly to dread acute inflammation of that viscus, and not the continuance of vomiting and purging.

The following are the circumstances which have led me to form this opinion.

1st



*1st The symptoms and general history of the disease.*

In all the cases I have seen, neither the vomiting nor purging have been very violent; they have generally been easily subdued, and often ceased of themselves; and the spasms have never been very severe. Altho' however the evacuations have ceased, and the spasms have not been violent, yet the pain at the scrobiculus cordis on pressure, the burning heat in the stomach and esophagus, and the violent thirst still continue. The patient sinks rapidly, the pulse fails at the wrist, the extremities become cold, he lies in a kind of stupor, but sensible to the last when roused, and generally dies in from 18 to 36 hours without any spasm or struggle.

Several people in the bazar and fields have suddenly become giddy, fallen down, and after one or two slight efforts to vomit, have expired in a few minutes; and almost all who have been attacked, have had some giddiness and pain in the head, have had a tendency to stupor, and have often become a little deaf. In two cases which I have seen, the jaw became locked for a time, but soon relaxed.

*2dly. The result of different modes of treatment.*

In seven cases which I considered fair trials and  
in



in which Mr. Corbyn's treatment was adopted, altho' the evacuations were soon checked, yet four of the patients gradually sunk and died in from 24 to 36 hours; and of four other cases brought when too late, and very much exhausted, I lost the whole, altho' Mr. C's. dose was exhibited and afterwards assisted by the strongest stimulants both internally and externally. Nothing however could rouse the circulation or restore heat to the extremities.

Whereas of three cases which I have lately seen, all of whom have been early, freely, and repeatedly bled, two have completely recovered, and I consider the third out of all danger. In the two first, the pulse rose under the bleeding, the burning heat of the stomach disappeared, and they expressed themselves completely relieved.

They had still however a great inclination to sleep, and the pit of the stomach was still a little painful on pressure; but these symptoms were soon removed by a dose of jalap and calomel.

The third was very low when brought to me, and I with difficulty obtained a sufficient quantity of blood, but his pulse also rose as the blood flowed. The vomiting however still continued in a slight degree, but was stopped by a full dose of laudanum and the application of a blister over the stomach. He now complains only of a little debility.

The



The man from whom I took the greatest quantity of blood in the shortest space of time, was the quickest and most perfect recovery. The blood, however, did not in any of these three cases assume the buffy or inflammatory appearance.

*3dly. The appearances on inspection of dead bodies.*

I was allowed to inspect the body of one of my first patients who died after 20 hours' illness. The stomach and bowels were quite empty, and all the viscera of the abdomen were perfectly sound and natural, except the stomach which was much inflamed, but not in my opinion sufficient to account for the suddenness of the event. Its inner coat was much corrugated, in some places reddened by inflammation, and generally covered with a coat of coagulable lymph, or something like thickened mucus, of a slightly yellowish colour; but there were no appearances of gangrene or ulceration. I did not at this time suspect the brain, and unfortunately neglected to inspect the head.

I have also inspected the body of a man who died at a village, about a mile from Satara, and who was dead before I saw him. A native practitioner had given him two pills containing three grains of opium in each. The evacuations ceased in about 8 hours, but he died in 24. The  
stomach

stomach and bowels were quite empty ; the bowels perfectly sound, but the stomach exhibited slight marks of inflammation or rather of venous congestion. The liver was quite sound, and the gall bladder contained the usual quantity of healthy bile. In the head however there was every appearance of extreme venous congestion, for all the vessels of the coats of the brain were much dilated and quite turgid with blood ; but there was no rupture nor effusion, nor were there marks of active arterial inflammation in the substance of the brain.

Mr. Sheppee will have probably communicated an account of the appearances in the body of a dooley bearer which he inspected. They are exactly similar to my last case, and it also struck him that the dura mater was preternaturally tense, as if from the pressure of the dilated mass within. Mr. Corbyn also mentions marks of general inflammation of the viscera of the abdomen in the case which he inspected, but he does not say that he examined the head.

Such then are the reasons which have induced me to suspect that in the epidemic now prevalent in this vicinity, the brain is often, if not generally, the organ principally affected. It also appears to me that the sudden crisis of the disease is scarcely to be accounted for, looking only or principally



cipally to the stomach, for I have not seen the evacuations so violent or so long continued as to occasion death from exhaustion; the spasms have never been so severe as to cause it, and the event has in my opinion often been too rapid to be accounted for from the common course of inflammation. But even if the idea of the brain being affected is erroneous, yet, as inflammation of the stomach does appear to arise in many cases, bleeding, early, freely and repeatedly cannot but be highly beneficial.

Mr. Corbyn indeed recommends it in *Europeans*, but I think if he had seen the disease in the form it has assumed in this quarter, he would have insisted much more on the necessity of it. It must be done early in the disease, for in the latter stages it will not flow in any quantity even from the jugular veins or temporal artery. Indeed after the pulse has failed at the wrist and the extremities have become cold, I consider the patient as almost irrecoverable.

If my idea is correct, the auxiliary points of treatment will be obvious. I have not seen internal stimulants of any use, and I suspect they are generally prejudicial; but blisters to the stomach and head promise to be useful.

P. S. I have this forenoon had another case in  
which

which bleeding has completely cured the disease. It was a decided case of the epidemic, and the blood put on a highly inflammatory appearance.

A. G.

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No. 22

*Extract of a letter from Mr. Wallace to Dr.  
Milne.*

Seroor 23d August 1818.

SIR,

The cholera has, I regret to say, attacked several people yesterday and to day, with symptoms of extreme violence. In two cases the coldness and loss of pulse, with the collapse of the features, came on four hours after the first symptoms of purging; this was quickly succeeded by vomiting, but the patients had no spasms and suffered no pain whatever in three of these cases. I was induced to bleed; but though the veins in both arms were freely opened, and the patient immersed in a tub of hot water, very small quantities of blood could be obtained, and no benefit received to the patient. Indeed three fourths of my patients would, I am of opinion, have furnished the same results, if venesection had been practised. I hope you  
will



will not infer from this observation, that I am hostile to the practice, I have always practiced it with Europeans; but, these cases had neither lost their pulse nor altogether the warmth of their extremities, and the spasms were often violent. My opinion is, that any remedies likely to restore the balance of the circulation are applicable; and it is with this view, that I have given calomel in large and repeated doses, which I think not only powerfully determine to the surface, but excite the actions of the secretory organs, whose functions are for a time completely suspended.

We shall have no want of facts, and I trust that a reasonable and successful practice will result from them: but I confess the more I see of this fatal disease, the less sanguine I am in it's cure.

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### No. 23.

*Extract of a letter from Lieutenant Colonel Cunningham, to Dr. Milne.*

Kurrar, 28th August 1818.

We have certainly got the disease under, although we have not got rid of it altogether;  
and

and it is still doing much mischief in several of the villages. It is rather a remarkable circumstance, that the Natives in some places have had recourse to bleeding of their own accord, and with the best effect.

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No. 24.

*Extract of a letter from Mr. Wallace to Dr. Milne.*

Seroor, 31st August 1818.

I have the pleasure to return you \_\_\_\_\_  
\_\_\_\_\_’s letter, which by no means convinces me, that the epidemic is contagious. I believe the first man attacked in our cantonments, was a bazar peon, a very old man, who lived in the centre of the bazar; this man was not removed from his hut, he recovered, and not one of his numerous family was attacked. The second case was in an old Mussulman, who lived in a small routee, pitched in an open space before Mr. Griffiths’s house. He also recovered. This disease was never confined to a particular spot in the bazar, nor did it appear to rage in one quarter, more than another. The sick were always accompanied to the hospital by their families, and I have never been able to trace any  
thing



thing like contagion amongst them; though a particular circumstance led me to have this object in view, soon after the disease first appeared. A great proportion of the cases have lately occurred in grass-cutters, and people who have been much exposed to cold and damp; indeed I have in many cases traced the commencement of the attack to a check to the perspiration. Not one of the medical attendants in the hospital has been attacked, and some of them, particularly Ragoba (whom you know) has been unremitting in his care and attention. There have been also lying in the hospital, three convalescent wounded Madras troopers and one follower with a bad wound in his thigh. These men have slept during the last six weeks in the midst of people affected with cholera, and they have all escaped the disease. The follower, it is true, was attacked the other day with violent cholic and coldness of the extremities, but these symptoms gave way to a warm purgative and friction, though I am inclined to believe some of my medical friends might have bled him, and thus cured an Epidemic Cholera.

—————'s letter induces me to think, that there must have been some unusual symptoms of this disease to the southward. In almost

most all the cases I have had, and particularly during the present month, the disease was ushered in by purging, and the symptoms were progressive, though they varied in their rapidity. I am happy to say I have had no case during the last forty eight hours.

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## No. 25.

*Copy of a letter from Mr. Surgeon Robertson,  
of the Bombay European regiment, to Dr.  
Milne.*

Camp at Keerky, 31st August, 1818.

To

JOHN MILNE M. D. Esq.

P. O. O. N. A. H.,

MY DEAR DOCTOR,

You have had daily information regarding the appearance and the progress of the epidemic in the Bombay regiment. But, agreeably to your desire, and to the example set by our Medical brethren at Seroor and the other stations under your superintendence, who have had an earlier opportunity of witnessing the effects, and describing the various symptoms, and detailing the most successful practice, and indeed, who have written upon this disease in such a masterly manner, that nothing appears to have escaped them, I have  
now



now the pleasure, tho' with considerable diffidence, to offer these few remarks, accompanying my weekly report.

We had been upon the look-out for this attack upwards of a month, and altho' every precaution was used, and strict orders given, that the moment a man was taken ill in the lines, he should be brought to me at any hour in the day or night, yet our two first patients, who were both seized at night, were unfortunately, thro' their own obstinacy allowed to remain in the lines 'till next morning, when every effort to save them proved ineffectual. From the mild nature of the incipient symptoms in one of them, an old man, the complaint had failed to attract the notice of those in his tent, and the other patient, who was inclined to be sickly and subject to occasional attacks of fever, succeeded in deceiving his Serjeant, who was about to bring him to me, by saying that he was getting well fast, and that nothing was then the matter with him.

The commanding officer immediately adopted measures which, together with some alarm occasioned by these two cases, have effectually prevented a similar occurrence, and we have lost none since.

The disease displays great variety in its mode  
of

of attack, which is certainly influenced by the constitution of the subject; and generally affects parts which had been weakened or had sustained injury from previous bad health. Thus, amongst our admissions into hospital, I observed that men, who had been exposed to the remote or exciting causes of fever, were seized with a cold chill and shivering, and a great weakness, they said, such as they never felt before, with sometimes a loss of sight; these were succeeded in a short time by a hot skin, quick and tolerably full pulse, acute headach, intense thirst, sickness, and sometimes vomiting, great oppressions in the chest and a tendency to spasmodic twitchings there, without much affection of their bowels.

Men, who have had bowel complaints, (I speak from a knowledge of their constitution) have felt the same weakness come over them, with tremour of the whole frame, a griping and purging of white and slimy matter, while the affection of the stomach and head did not appear to be in proportion to that of the bowels.

A man, who has had epilepsy, was heard at night by the Serjeant to be moaning and grinding his teeth in his sleep; the Serjeant awoke him, and he instantly began to vomit. He was brought to me quite insensible, and on being  
roused



roused by smelling salts, was again immediately seized with vomiting, after which he fell into tears, and he felt an unaccountable oppression upon his chest, with great headach and thirst. He took a dose of calomel and laudanum, fell fast asleep, and was quite well next morning. A man, who formerly had hemiplegia, from which he completely recovered, fell down while going from his tent to the cook-room to order his supper. He was immediately brought to the hospital with total paralysis of his left side (the same which had formerly been affected); he was bled, until he regained the use of his arm and leg, and was well next day.

Worms; by their irritation, induce a predisposition to the attack. We have had two cases, one of the *tœnia*, and one of the *teres* kind. In both, when first attacked, the pain in the bowels was excruciating, with headach, thirst, vomiting and purging; skin cold, pulse a little quickened and oppressed, and the patients (altho' in ordinary health just before) gave themselves up, and said they had but a few hours to live. Bleeding relieved them, and the calomel & laudanum brought them quite round. The worms made their appearance next morning.

The diaphragm is affected in many instances,  
and

and two cases have occurred here, in which a violent spasm of this muscle appeared to be the prominent symptom of the disease. The patients were struck down perfectly insensible, with the pupils dilated, pulse slow and oppressed, great headach, and thirst, a cold sweat, purging, retching (without any effect), and at intervals the most violent contortions of the whole body, so that the assistance of several people was required to hold them upon their cots. Copious venesection, with anodyne injections, and the warm-bath, subdued the spasm, and relieved the head; and at the sametime, when swallowing became practicable, admitted the exhibition of calomel and laudanum.

A large blister over the diaphragm secured what had been gained, and confirmed their convalescence.

The following is the number of patients, with the dates of their admission &c.

*Abstract of patients with Epidemic Cholera.*

WHEN ADMITTED	No.	CURED	DECEASED	REMAINING
August 24th	1	"	1	"
" 25th	7	3	1	3
" 26th	7	4	"	3
" 27th	4	4	"	"
" 28th	4	1	"	3
" 29th	1	"	"	1
TOTAL,	24	12	2	10

Dr.



Dr. Dalgairns and myself had an opportunity of inspecting one of the bodies only; and the dissection (which took place late in the afternoon) was, from want of light, unfortunately confined to the abdominal viscera. We traced the appearances, so beautifully and correctly described by Mr. Whyte of the light battalion. The veins of the omentum, as if injected with wax, first arrested our attention. The small intestines were considerably inflated with air, and their veins were also turgid; the colon, throughout its whole extent, was wonderfully contracted in diameter, and its cavity entirely obliterated; the intestines were quite empty. In the stomach we found the medicines he had taken, the coats of it were sound, and the veins full of blood. The liver was sound. The gall bladder full of bile; and the spleen in a state of health.

We perceive nothing of a contagious nature in the disease.

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No. 26.

*Extract of a letter from Mr. Surgeon Gordon to  
George Ogilvy Esq. Secretary Medical Board.*

Satara, 5th September 1818.

I some time ago sent you a report for the  
Medical

Medical Board, which I hope you received, regarding what I had seen of the Cholera Morbus in this vicinity, and in which I laid considerable stress on the importance of free and early blood-letting.

Since then I have had eleven cases, bled the whole of them, some very largely, gave Dr. Corbyn's dose, and then opened the bowels, and they are all quite well. I am perfectly convinced that nothing but the bleeding could have saved the lives of three of them, and it certainly has not done harm in any one of these cases. It was quite pleasing to hear some of them, whilst the blood was flowing, first say, "the pain in my head is gone," then, "the burning heat in the belly is also gone," and next, "the cramps have also ceased." If the patient is not brought very soon after the attack, the blood often flows at first only by drops and very black coloured, but after a little has escaped, the patient yawns, or takes two or three full inspirations, and then the blood flows in a full stream.

In one case I opened a vein in the arm, but the blood would not flow; I then tried the jugular vein, also without much effect, the vein merely emptying itself and then ceasing. I then opened the temporal artery which bled tolera-

bly



bly freely; after a few ounces had escaped, the circulation so far recovered itself that the blood began to flow from the jugular vein, and on putting the ligature again on the arm the blood now came in a full stream. The pulse always rises under the loss of blood, and the heat returns to the extremities as the circulation returns. In those cases therefore where the head is the organ principally concerned, by taking blood, we remove the venous congestion in the head, thereby restore the energy of the brain and enable it to re-assume its controul over the circulating system; and in those cases where the stomach is principally concerned, we remove the danger of inflammation taking place, and thus reduce the disease to a case of mild common cholera morbus.

If the patient is so far gone that the blood will not flow even when in the hot bath, I consider the case as desperate; altho' life may continue for many hours: for altho' every other bad symptom has disappeared, yet nothing will rouse the circulation again. In several cases altho' Dr. Corbyn's dose was immediately rejected from the stomach, yet the draught given without the calomel was retained: and in some cases blisters to the pit of the stomach and neck were very useful in removing all remains of pain.

## No. 27.

*Extracts of a letter from Mr. Assistant Surgeon  
Henderson to Dr. Milne.*

Kurrar, 14th August 1818.

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In these cases the primary symptoms did not appear to be uniform : in several the vomiting and purging did not commence for some time ; and in two cases which came under my notice there was neither vomiting nor purging ; tho' the spasms, pain in the abdomen, and great prostration of strength, which invariably marked this disease, were very severe. Syncope was sometimes a primary symptom ; and in one case the sudden debilitating effects of this disease were so severe, that a carpenter, while at work, fell down in a state of asphyxia, from which, when he was in some manner roused, he was seized with the other symptoms of the disease in so violent a manner, that he died, notwithstanding medical aid was immediately obtained. Sometimes there was vomiting without purging, and *vice versa*. Generally, however, watery stools were the first symptom ; the irritation then appeared to spread to the stomach, and produced vomiting, and inverted action of the intestines, often causing a vomiting of large  
worms



worms in considerable numbers. The purging of watery matter was found the symptom most difficult to be allayed, and the disease in those cases, seemed to run its course much faster, producing the cold sweat and coldness of the extremities; from which symptoms few, if any recovered. Pain in the region of the abdomen, as well as burning heat and spasms, were constant symptoms. I only observed hiccup in one patient, who was dying; and Mr. Radford in two other cases, both of which likewise were fatal. In no case, was there any swelling of the abdomen, nor any reason to suspect a collection of wind in the intestines.

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Having lost one or two patients, who received medicines from me in an early stage of the disease, while I trusted to the calomel and opium; and observing that in these, the symptoms most distressing and permanent, were the pain and heat in the abdomen, and the violent spasms of the legs and arms, I determined on trying blood-letting on the next favorable subject, conceiving that the disease was purely inflammatory; and the result exceeded my most sanguine expectation. In short, every case recovered, which arrived early; and several recovered, who had been 8 hours and upwards labouring under this disease; and  
who,

who, I have no doubt, would have fallen victims to it, had not the lancet been used. In every case venesection has been adopted latterly, without regard to age or constitution ; and in my opinion neither the state of the skin nor the pulse, ought to dissuade us from bleeding. The effects of it were almost instantaneous in relieving the pain of the abdomen and spasms ; and where enough of blood was drawn, they never returned. It checked vomiting, at the same time, and what marked the similarity of the disease to interitis, was that the pulse became fuller and softer with the bleeding, tho' it was before almost imperceptible ; and the blood, which flowed at first *guttatim*, gradually run in a fair stream : eighteen ounces was a common bleeding, and in no case did I observe that the patient was weakened by it.

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No. 28.

*Extract of a Letter from Mr. Assistant Surgeon  
Whyte to Dr. Milne.*

Seroor, 17th August 1818.

Since I last wrote you, I have hardly seen one case of cholera, consequently have had no opportunity



opportunity of making further observations on the subject; but should it again recur, I will continue to acquaint you with my progress.

I understand Mr. Moyle opened the thorax and abdomen of an artillery man, who died the day after the man of whose dissection I formerly gave you an account; and he found the appearances in general the same as we had found in his former case.

I was present likewise at a dissection made yesterday morning by Dr. Wallace; and in general the appearances corresponded very exactly with those, of which I gave you an account in my last letter, so that I regard the fact of venous congestion, as now indisputably established. I am very anxious to learn the result in a more particular manner of venesection in this disease. But as the disease appears to have assumed different types, according as it attacked men of different habits, more especially Europeans and natives; as it has likewise been observed to take on different degrees of violence at different periods, being generally most violent at first, and pretty constantly becoming milder in a short time after; it appears to me necessary, in order to establish clearly the superior advantages of this practice, that the prominent symptoms, in those cases wherein

wherein it has been used, should be described, and its apparent effects regularly noted down : else this, or any other remedies may, in time, acquire an undue degree of credit, from having been employed in cases of comparatively little danger ; and at periods, when the epidemic has assumed its mildest type. I fear, that it has happened, that bleeding has been refrained from entirely, while the epidemic assumed its worst form, as wholly inapplicable ; afterwards used during it's milder attacks, and regretted then, that it had not been used sooner ; occasioning the greatest confusion by this means in the general result and proper indications of cure.

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No. 29.

*Extract of a Letter from Mr. Assistant Surgeon  
Whyte to Dr. Milne.*

Seroor, 7th September 1818.

Convinced, as I am, of the total absence of contagion in this disease, I have observed the late revival in some measure of this opinion with some degree of pain. Surely, if it was at all contagious, the fact of it's being so could not long remain doubtful. In the general hospital here, there were three sepoys, who resided continually from the  
first



first appearance of the epidemic, inhaling at every inspiration by day and night, mouthfuls of infection. If the atmosphere was really loaded with contagious effluvia, arising from the bodies of the numerous inhabitants of the hospital, the escape of these men (which has been complete) would be miraculous indeed, living as they were in the very midst of these effluvia, and so near their source. Allowing that the constant habit of doing so procured them an exemption from the influence of this contagion, the same thing cannot be said of the friends and relations who were attending upon the patients, nor of six dooly bearers, changed daily, and who used to assist the sick into and out the bath, and in every other way; thereby exposed to be infected with the disease, whether it is conveyed through the medium of the atmosphere, or by touch: and yet I have not known one instance of dooly bearers, friends, and attendants of the sick being so infected; nor have any of our hallalchores, or hospital assistants suffered. One of your correspondents supposes, that the disease has travelled in a direct route at the easy rate of 15 miles a day, and *believes, if it could be proved*, that it has not shewn itself in any village, that had remained insulated or unconnected with other villages, where the disease was. Until this is *proved*, it is quite

quite as easy to believe the contrary. In the mean time, we have seen it affecting a particular part in one cantonment for days, without reaching another part, although a constant communication was kept up between these parts all the while. The only disease resembling in the extent of it's ravages this disease (and it has exceeded it) is the influenza; which, although many have supposed the contrary (as will be always supposed by some of every epidemic), is now generally allowed by the best judges to be propagated without contagion. In one of these epidemics (I forget in what year) which, I remember, I have heard Dr. Gregory describe, this disease first appeared in America, came across the Atlantic, shewing itself in it's progress in different longitudes at sea, in ships that had departed from a port free from the disease, appeared first in the most westerly parts, and gradually proceeded to the most easterly of Europe, and from these into Asia, sometimes in the wind's eye, sometimes not, as happened. Nothing is so apt to impose upon advocates for contagion, as the disease attacking in succession the houses next to each other, as cholera is said to have done in Bombay. The yellow fever, when it first shewed itself in Philadelphia (I believe 1799), deceived Dr. Rush

in



in this manner, and he had afterwards the meritorious candour to acknowledge it.

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No. 30.

*Extract of a Letter from Mr. Assistant Surgeon  
Henderson, to Dr. Milne.*

Kurrar, 13th September 1818.

With respect to it's contagious appearances, I have observed nothing here, which indicated such a quality in the disease. Certain classes of people, as also certain modes and conditions of living seem to [me to predispose to it's attack. Hindoos appear more subject than Mussulmans; the poor and the old, more than the rich and the robust; and exposure to cold and damp seem also to be predisposing causes. For these reasons, I can conceive the disease to assume strong marks of contagion in some instances; as in a corps composed of one cast of Hindoos, all subject to the same predisposing causes, while they adopt the same mode of life; or in a village, whose inhabitants are generally poor, and the village ill situated: this last I have certainly remarked in this neighbourhood; and I think, that, in such circumstances, it may sometimes give rise to an idea of it's contagious quality. To ascertain this point, however,

however, is a subject of no mean importance, even more so than it's cause; and I should be extremely glad to be favoured with your idea of this.

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No. 31.

*Extract of a letter from Mr. Surgeon Craw,  
to Mr. Jukes, Garrison Surgeon, Tannah.*

Seroor, August 1818.

As the cholera is still prevalent here, I think it may be acceptable to you to learn how matters are going on, and particularly as I have it now in my power to afford you the most convincing proof of the decided superiority of bleeding in European subjects. I think I mentioned to you in my former letter on this subject, that there was some apparent difference in the symptoms and state of the system as the disease is, on its first onset, observed in the European and native; and particularly, that in the former there is a first stage in which the pulse is quickened and the heat of the skin somewhat augmented; or at least that the first does not so rapidly sink nor the latter diminish in a great degree. It is in this early stage in which venesection most certainly conquers the disease, and if notwithstanding the use of this  
remedy



remedy symptoms of *apparent* debility ensue, these are still in a very minor degree, and strongly evince the great power of blood letting in rendering the morbid chain of symptoms less threatening and fatal. Since the 21st of last month (when the disease appeared in the 65th regt.) to the 10th of this month inclusive, 100 cases of the disease have been admitted into hospital. Of that number 88 were bled freely on their admission, and only 2 have died; while of the remaining 12 who were not bled, no less than 8 have fallen a sacrifice to the disease. This simple statement speaks volumes. For the two first days, Dr. Burrell did not employ the lancet, but he speedily found out the inefficacy of the common treatment. Of the 12 patients who were not bled therefore, the greatest part were admitted on the 1st or 2d day, and about 3 or 4 since, with such symptoms of sinking as did not appear to him to render bleeding admissible. He now laments extremely that the scare-crow of *imaginary* debility, should have deterred him from employing the only remedy which could have promised a successful result; as the appearances on dissection have but too well proved the necessity of such treatment. One of these cases I shall shortly relate to you. A patient in hospital convalescent from obstinate and long continued symptoms of a syphilitic nature,  
was

was attacked on the 8th inst. with the usual symptoms of cholera. Being supposed to be debilitated by the protracted nature of his former disease, he was not bled, but had the calomel and laudanum, the warm bath &c. according to the common plan. These however were of no avail, and he died, about 18 hours after he was attacked. On dissection, the vessels of the stomach, duodenum, and the whole of the alimentary canal, with those of the mesentery, liver, and lungs, were found amazingly gorged and distended with blood; many of the veins, particularly of the stomach and mesentery, were as large as crow quills; and the smaller ramifications of the arteries were also distended with every appearance of general inflammation as well as of venous congestion. The transverse arch of the colon seemed as if death had not liberated it from the violent spasm with which it had been affected, for it was contracted to a very small size and almost impervious. I had last night an opportunity of seeing the dissection of a still more important case. A man of the foot artillery died about 30 hours after the attack of the disease. This patient I saw twice during his illness. Moyle opened a vein when the man applied at the hospital, but as there was not a drop of blood discharged from it, the arm was tried up and the cure trusted to the other



other means. Symptoms of coma and great derangement in the head, with great anxiety, and oppressed and laborious respiration speedily came on, and the hands, arms, and lower extremities were cold, while the rest of the body retained its natural temperature. Powerful stimuli were administered, and blisters applied to the epigastrium, head and back of the neck, and leeches to the forehead, but these were not successful in drawing blood, and the man sunk. On dissection, we found the same congestion of blood in the abdominal and thoracic viscera as in the former case; but there were also large spots of extravasated blood found in different parts of the intestinal canal, and in other places decided appearances of increased arterial action, while a large portion of the ilium and colon was in a complete gangrenous state. I felt certain, from the symptoms, that the brain would indicate disease, and nothing could be more convincing than the appearances when the calvarium was removed. The most expert anatomist could not have injected the ten millionth part of the vessels which now covered the membranes and surface of the brain. It appeared indeed as if the whole was nothing but a mass of blood vessels, and every little branch seemed so entirely distended and glutted as if one drop more must have ruptured it. There was no effusion of fluid in  
the

the surface nor in the ventricles; but if the patient had lived a few hours longer, either this or an effusion of blood must have inevitably happened. In the space of 20 or 30 hours, therefore, you see there is not only formed a true congestive disease, but inflammation and even gangrene has taken place; and how these are to be better remedied or prevented than by blood letting, I cannot conjecture. When I saw the last patient, I was firmly of opinion that nothing else would save him: the difficulty appeared to be that blood could not be drawn from the surface; but by immersing him in the hot bath and opening the temporal artery, or jugular vein, this difficulty might probably have been obviated. In the mean time all these comatose patients uniformly die. The other symptoms which have constantly prognosticated a fatal termination, are, the long continued absence of the pulse at the wrist, the great coldness of the legs, arms and hands, the lividity of the skin and nails, and the contraction of the fingers, with the sodden appearance of the cuticle on the fingers and palms, and sunk eye surrounded with a livid circle. Yet there is a patient in the foot artillery hospital with all these symptoms: he has lain in this state for two days, extremities as cold as death, and pulse either in the radial or brachial artery quite imperceptible; but heat is very gradually



dually returning, he is free from all uneasiness, speaks with considerable strength, and notwithstanding appearances, will, I think, ultimately recover. We ought to be cautious therefore in drawing our prognosis: but I must remark, that in this case there has been none of that profuse cold sweat which invariably marks the fatality of the disease. From this patient not more than 10 ounces of blood could be obtained, but this small abstraction, in my opinion, has had a favourable influence. Moyle's practice in the horse and foot artillery, and Mr. Campbell's in the 17th dragoons, prove equally illustrative of the grand effects of depletion; and I shall attempt to show that the same plan would be fully as efficacious with the natives. Wallace in the general hospital, and Whyte in the sepoy hospitals, do not get their patients till the disease is of some standing; they lose the first stage, when the powers of life seem to make a struggle against the disease, and when the lancet is so sure of obtaining the "*victoria læta*." Hence their patients are admitted with want of pulse, coldness of the extremities, and great debility; and many of them in *articulo mortis*. If one out of 5 or 6 of these die, we cannot wonder at it; but rather how so many should live. Their dissections however have presented the same appearances as I have already described. The more  
irritable

irritable and mobile fibre of the Indian will well account for the greater rapidity with which symptoms of exhaustion take place ; and therefore there is the greater necessity for checking the disease in the very bud, if the patient can be had at this early stage. Dr. Burrrell's lancet has done this with great success. He has bled all the native patients belonging to the regiment, and the cases have been at least as numerous as those of the Europeans, and exactly with the same result; but he gets them while there is yet a little vitality in the pulse and surface ; and however short this stage may be, it is a certain one, and the cure nearly as certain. Upon the whole, this is his rule—In all cases where the stomach and bowels are affected, or while there are *any spasms*, even tho' the pulse is obscure and the extremities cold, open a vein and draw blood till an abatement or relief is procured. But in many cases it is necessary to bleed once and again ; particularly if the spasms are violent, or the breathing oppressed, or the head affected. There can be no doubt, that death in many cases takes place rapidly from the spasms extending to the large blood vessels, and heart itself. Such cases must exhibit an almost instantaneous appearance of sinking and debility : but as in this case the powers of life are oppressed and not exhausted, I am confident that taking blood would  
remove



remove the alarming symptoms. In many cases, in affections of the head particularly, great oppression in the chest, and where the abdomen is tender and painful to the touch, blisters prove useful; but there is a considerable difficulty in exciting vesication, and the object is to do this effectually in a very short time. It is therefore a great improvement on the process, to apply to the place intended to be vesicated, the nitric acid by means of a little lint, and then applying the blister in the common way. Opium is the most injurious medicine that can be employed, the calomel alone will quiet the stomach, particularly if combined with previous bleeding and the warm bath, and that is the only apparent use of opium. It increases the congestion, the *constipation*, and tendency to inflammation, and materially deranges the head. My plan would be bleeding, warm bath, and a bolus of musk and sub-carbonate of ammonia. I have made extensive trials of the latter medicines in spasmodic diseases, gastric irritability, and congestions in the head and viscera, and found them most powerful in allaying spasm and irritability, in allaying coma and exciting sensation, and in quickly and safely determining to the surface. They must be given however in large doses, and repeated frequently. In the cold stages they would produce a most beneficial effect.



I observe in a late number of the Edinburgh medical and surgical journal, the review of a work by a Dr. Armstrong on typhus. He particularly mentions a congestive typhus with all the appearances on dissection which our epidemic exhibits, and strongly recommends copious bleeding, warm bath, and simple doses of calomel. It is an interesting work which you may perhaps find in Bombay. Indeed the lancet is now the grand remedy at home in fevers of all types, at least continued fevers. We have had for the last week a great deal of rain, but I do not observe that it has had any effect in diminishing our disease; at least the Europeans continue to suffer nearly as much as ever, though it is certainly on the wane amongst the natives. In fact, cold and moisture are the most powerful predisposing causes, but as most of the natives have had their visitation, the occasional or exciting cause must have fresh pabulum at another station. What this cause may be, we can never hope to know, for I hold it as proved, that in all epidemics the chemical constitution of the atmosphere remains unchanged. The proximate cause, tho' not quite so much obscured, is yet greatly in the dark. We can discern, it is true, nearly the whole of the morbid chain, but what is primary and what secondary we cannot tell.

*The*



*The following letter, tho' not from a medical gentleman, is inserted as containing some interesting facts and observations. A liberty which the writer will, no doubt, excuse.*

**No. 32.**

*Copy of a letter from Capt. Sykes to Dr. Milne.*

Punderpoor 15th August 1818.

I am happy to meet your wishes in communicating the result of my observations on the cholera morbus; but you must be satisfied with the trifling information, I can afford you, being comprised in a meagre detail of facts.

I have seen the malady under three distinct shapes—1st. Where the victim, in previous robust health, is struck senseless, of this I had five cases in my camp. In three cases, bleeding, with a subsequent emetic and cathartic, restored the patient in two days. In one case, the blood could not be made to flow although violent friction was used to rouse the circulation; nor could any remedy be got down the throat, and the man died in eight hours. In the other, bleeding was not tried, and death ensued in a few hours. When the disease first commenced it's ravages in Punderpoor, it must have been under this form, for 350 people are described to have died in one day, tumbling  
over

over each other lifeless in the public streets. The 2d form of it was under violent and incessant purging of watery matter. Many attacked in this way throw up from the stomach one or two long brown worms. Most of those who retained the calomel and laudanum in their stomachs, recovered. In one instance, I am induced to believe an old woman died from weakness, four days after the disease had been stopped. It does not appear to me, that calomel and laudanum may be relied upon as a *certain* means of arresting the progress of the disease, for some died unexpectedly after having kept the medicines on their stomachs; and one or two were so violently attacked, as to resist every effort to keep down the repeated doses of laudanum. These of course died. The 3d form is that of violent purging of watery matter, with little or no vomiting at first. In the cases of two of my servants, the attack was preceded by a cold inflated sensation in the stomach for some previous days, with total loss of appetite, and violent eructations. In this form the spasms were weaker, and the disease evidently less severe than in the other kinds. The usual remedies put an effectual stop to it in two or three days.

With respect to the origin and nature of the malady, I am incompetent to give an opinion. But that it's progress is independent of the air, I think  
there



there are many circumstances to justify the belief in. In the first place, we see that it has made its way against a permanent S. W. wind, from Jaulna down to Punderpoor. Its effects were not instantaneous in the country; but its progress may be traced by a slow advance of 15 or 20 miles a day, as if it has been communicating gradually by persons travelling from town to town. Its principal ravages about here appear to have been confined to the high roads from Punderpoor, and the large villages in the neighbourhood; and I dare say it might be proved, that it did not break out in any village, until that village had communication with a neighbouring place, in which the disease existed. Corroborative of this, are the observations I made at Natapoota on the 17th July. That day, I descended the Mahadoo ghaut from the town of Singnapoor, in which the disease was unknown, and marched six miles to Natapoota; where the plague had that very day made its first appearance. It first appeared in Punderpoor on the 14th, so that it had taken three days to travel 40, or 50, miles to Natapoota. There are other circumstances also to justify the belief, that it is contagious. In my light company, there were three or four men taken at once, of course there were attendants from the same company upon these men. The disease went on increasing

ing in that company: and there have been more cases of cholera in it than any other. One of my servants was attacked, it gradually spread to five. An officer at Punderpoor had seven servants attacked, one after the other. The gentleman in the next tent had not one. I have seen a similar instance in our corps. I should infer, therefore, from it's running in particular companies of a corps, or sets of servants, that as they attend on each other, and constantly sit or sleep in the confined space of a small tent, that the disease is communicated by absolute contact, or from respiring the same air that a diseased person has done. I am aware, that there are very strong arguments against it's being infectious, persons escaping who have been in constant habits of handling the sick & breathing the air of the cholera hospitals. But I do not think I can cite myself as an instance of it, for I feel a strong conviction, that had I not taken timely remedies, I should have been attacked. How far the disease exists in the air, might at any time, I should think, be ascertained by a chemical analysis of it's component parts in some place, where the disease may be committing it's greatest ravages. The above observations, I fear, will not prove either novel or useful; but you are welcome to them.

No. 33.



## No. 33.

*Extracts of a letter from Mr. Whyte to Dr<sup>o</sup>  
Milne.*

Seroor 24th August 1818.

I return you, with many thanks for your attention in sending them, the letters on the subject of cholera from Messrs Jukes and Henderson; and beg at the same time to inform you, that I lost no time in circulating them, agreeably to the mode you pointed out.

Should the disease stay long at Tannah, I anticipate that considerable light will yet be thrown upon the different plans of cure by Mr. Jukes's well known zeal and ingenuity in research. As far as general conclusions can be drawn from a single case, his experience is satisfactory in favor of blood letting. But it appears to me, that it is only in a particular class of cholera, that it will be found to be favorable; & that the nature & extent of that class remains yet undefined. It appears to me further, that in the severest forms, it will be found totally inapplicable as a remedy. When the pulse has left the wrist, and the extremities are cold, it is impossible to draw blood, even by the aid of the warm bath; or at most, only a small quantity,  
when,

when, instead of the pulse reappearing, the flow of blood ceases entirely, and faintness or actual syncope comes on. This has been the case in three patients belonging to Mr. Wallace, of whom you will receive from him a more detailed account. The first man died; the other two, bled yesterday morning, were in the greatest danger afterwards. I am happy to say, they are both alive yet, and one appears likely to recover, the other's fate is still uncertain; but if either or both recover, they will owe their lives entirely to small doses of calomel and opium; of the former grains 2, and the latter  $\frac{1}{2}$  grain, given every half hour after the first large dose of these remedies which stayed upon the stomach. I am happy to confirm, by what I have since observed, my former recommendation of this remedy, given in the above manner. I believe that the stimulant effect of this quantity of calomel, lasts about half an hour; and is then followed by a corresponding sedative effect, so that it requires to be repeated after that lapse of time. In both of these men, it has restored some pulse, some heat of the surface, and produced high coloured stools; so that it has certainly prolonged their lives; allowing them still to be in some danger. One man had been ill eleven hours before his admission, the other three; but in neither could any quantity of blood be drawn, and in both  
did



did it produce a bad effect. Nor is a number of hours, in the worst cases, necessary to induce such unfavorable symptoms. In some of my patients, now alive, I have ascertained, by the clearest evidence, that these symptoms supervened in one hour from the attack; and that they were brought to the hospital in that space of time. These men have not the smallest recollection of any thing that occurred to them, for two or three days afterwards; and their recovery was very tedious; so great was the debility, and so suddenly induced by this disease.

Whenever the pulse rises as it did in Mr. Jukes's case, and the heat is restored by the warm bath (often it is increased), in these, I have no doubt, that bleeding will always be found the most successful remedy: and whenever the pulse, however small, remains at the wrist, while the heat is little or nothing diminished, and *the spasms are violent*, bleeding will always be a useful and powerful remedy. It was in such cases, that it was found successful here, and these were the most common cases amongst Europeans. Indeed I have been told, that in many, the heat was much increased. It has not occurred to me to meet with any such case; and in those where the pulse remained, and the coldness had not come on, our success was invariable with the usual remedy.

But

But by far the greatest proportion of cases among the natives here, were of the worst form, or what we distinguish by the appellation, in common conversation, of cold cases; and *latterly*, in these, spasm was not a striking symptom. In many, nothing but a tenderness of the muscles occurred; and in some of the fatal cases, attended with the greatest sinking of the *vis vitæ*, no heat, or pain on pressure of the abdomen, occurred. In one of these cases, a man who accompanied Captain Montresor from Poona, brought to the hospital after the disappearance of spasm, we found the mucous coat of the stomach studded with little red spots, either from extravasation, or the ramifications of minute arteries preternaturally injected with blood, while at the same time it was so soft and pulpy, that I could easily scrape it off with my nail.

The small intestines were full of a matter like the ill digested pus of a scrophulous abscess; & yet this man complained of no heat or pain of his abdomen before death.

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From the very nature of the disease, the *sudden* manner of its assuming the worst symptoms in some cases, the insidious mode of its attack in others, there will always be a large proportion  
of



of cases which will be little benefited by any remedy, and prove fatal at every station where it appears; and in the worst form of this disease, I much fear that blood letting will be found to exert little power, if not a deleterious one. There are certainly cases in which it is inapplicable: it becomes, therefore, a desideratum to distinguish these. Is this disease ever attended in the beginning with increased heat and quickness of pulse? And does this form ever run into the other, with cold extremities and sinking pulse, or total want of it? I have never seen it in this shape, although I have heard it contended, that it does, or may do so. It appears necessary to ascertain the correctness of this position; as if erroneous, it must be a fertile source of error, in as much as probably cases of fever with pains in different parts of the body, or even spasms, may be classed with cholera. You will understand, however, that from what I have observed in three cases of that kind, in which I wished for a more powerful remedy, as being composed of the cases we found here so dangerous, bleeding has failed, or appeared to be injurious; and that we were, after giving it a trial in such cases, obliged to resort to the remedies we formerly found most successful; and that these again appeared to do good.

## No. 34.

*Cases of Cholera Morbus in the Native General Hospital at Seroor during the month of August 1818.*

Hybuttee Ravee was admitted into the general hospital at Seroor, on the 8th August at 8. a. m. He had been attacked with purging about seven a. m. on the preceding day; the discharge was said to be of a brown colour, watery, with very little griping: about four hours after, he was seized with nausea and vomiting, which were quickly succeeded by spasmodic contractions of the upper and lower extremities. I was at the hospital when he was brought there, at which time the whole body was cold, his features and eyes sunk, and no pulsation could be felt in the arteries: his evacuations by vomit and stool, were frequent, watery, and of a dirty brown colour: he complained of pain in the stomach, this was not encreased by external pressure on the abdomen, nor was there any tension or fulness in the part: the muscles of the upper, lower extremities, and the abdomen, were contracted and painful. He was ordered to take fifteen grains of calomel in a draught containing sixty drops of laudanum, twenty of ol. menthæ and one ounce of water. This was almost instantly spouted out of the stomach: the patient was immediately



mediately placed in the hot bath, and five minutes after, 15 grains of calomel, three grains of opium and a little honey were swallowed, and retained : he was kept in the bath twenty minutes, and expressed himself relieved : no pulsation to be felt in the arteries, the body has acquired general warmth from the hot water, and he appears disposed to sleep : he was quickly roused by a return of the spasms, when a draught containing one dram of sp. ammon. arom., forty drops of tinct. opii and one ounce of water, was given and retained : the vomiting and purging are checked, but the spasms and pain are violent; he was rubbed all over with hot arrack and wrapped up in cumlies.

At twelve a. m. he was a second time placed in the hot bath, and a second dose of calomel with 30 drops of tinc. opii administered; he now dosed a little, and appeared more composed till one o'clock p. m., when he became extremely restless; complained of oppression about the hypochondria; the spasms had now nearly subsided; but the body again cold, became covered with a clammy sweat; this was soon succeeded by the peculiar appearance in the hands and feet, the skin of which became corrugated and folded up; repeated small doses of arrack and congie were ordered to be given.

I saw him again at six in the evening, when he was evidently dying; he was free from pain and perfectly sensible, and expressed a wish to be again put into the bath. The wish was complied with. He died at 7 p. m.

The body was opened the following morning at day light: all the abdominal viscera were found gorged with venous blood, the large veins having the appearance of being injected; the liver was dark coloured, slightly enlarged, and on cutting into its substance, appeared loaded with blood; the gall bladder was distended with dark coloured ropy bile, and there was not the least appearance of this fluid in any part of the stomach and intestinal canal. The stomach was about half filled with a dirty coloured fluid, the vessels on its surface were distended with blood, but the inner membranes were neither inflamed, nor discoloured; nor was the substance of this viscus thicker than usual. Numerous loaded veins were perceptible on the mesentery and small intestines, but on dividing and tracing these latter, no marks of inflammation were apparent on their inner membranes: the large intestines did not exhibit the same marks of congestion; the colon was contracted, the urinary bladder was empty.

The vessels of the lungs were turgid, and loaded



ed with blood, the quantity of water in the pericardium was not greater than is usual.

Gooniamae was admitted into the hospital on the 10th August at 10 a. m. He had been attacked with purging on the 5th at 4 a. m., which had been succeeded in a few hours by vomiting and spasm, these symptoms had all subsided when he was brought to the hospital. His whole body and extremities were cold, tongue furred, white, and cold, he was perfectly sensible, complained of restlessness and oppression, but was free from spasm or pain; his eyes and features were sunk, pulse not to be felt. He was placed in the hot bath, and the usual dose of calomel and opium administered: on being taken out, a blister was applied across the hypochondrium, and the extremities well rubbed with hot arrack, and equal quantities of this spirit and hot congee given in small quantities for common drink. The stomach rejected nothing, but it was evident that the disease had gone too far, and that reaction was not likely to take place. This man died at noon without a groan or struggle. The body was opened at five p. m. the same day.

In this case the venous congestion was more striking than in the former; the liver exhibited on its surface large distinct dark patches, the gall bladder

bladder was distended with dark green bile, and no appearance of this fluid was to be discovered in the intestinal canal; the stomach was half filled with a brown dirty coloured fluid, and the remedies swallowed in the morning were found in it unchanged, its external surface was covered with numerous vessels loaded with red blood, while its inner coat was so pulpy and softened that it was easily divided from the nervous coat, by the back of the nail of the thumb; the small intestines exhibited marks of inflammation, the veins on the mesentery were loaded with blood, the ileum contained a large quantity of half digested rice not having the least tinge of bile, and amongst this were found three large lumbrici, dead.

The colon was contracted through its whole course, but shewed no marks of inflammation except the turgid veins on the mesentery and its external coat. The bladder was empty.

The thoracic viscera exhibited the same marks of venous congestion, and an unusually large quantity of water was found in the pericardium.

The head was not opened.

Three other bodies were inspected, in all of which, congestion of blood, more particularly in the liver, was the most remarkable appearance :  
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the vessels on the stomach and intestines were loaded with blood, and the non-appearance of bile in their canal was a constant occurrence. These appearances, and an account that reached us at this time, that bleeding had been attended with remarkable good effects to the southward, induced me to give the practice a trial: the result is recorded in the three following cases.

Case. 1st.—Dadoo, a servant of B. Gen. Smith, aged twenty, of a weakly habit, was attacked on the 23d of August at 4 a. m. with purging of watery matter, unaccompanied with griping. On the 3d evacuation, about 5 o'clock, he fell to the ground fainting from debility: as six a. m. he was seized with vomiting and spasmodic contractions of the upper and lower extremities. I was called to see him at half past seven; as this time his extremities were becoming cold, his pulse feeble but regular, vomiting and purging frequent, the discharge a dirty brown coloured fluid, he complained of no pain whatever and the spasms had subsided: fifteen grains of calomel was given in the usual quantity of laudanum and immediately vomited, he soon after had a discharge by stool. I now opened a vein in the right arm, when the blood flowing by drops, a larger opening was made in the vein of the left arm, and the patient put in the hot bath; he soon became faint, but by  
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the aid of volatile salts was kept in the tub for twenty minutes. During this time, notwithstanding every exertion by friction, &c., six ounces only of blood could be obtained; on removing him from the tub, he fainted: on his recovery, the dose of calomel and laudanum was again given, and retained: at this time the pulse could no longer be felt at the wrist, but the temporal artery could be indistinctly perceived.

At 10 a. m. he continued free from pain, the vomiting had ceased, but the purging was frequent, his extremities were cold, pulse not to be felt. He was again placed in the hot bath, and on being taken out, an enema containing half an ounce of tinc. opii and two ounces of congee was injected, and pills containing two grains of calomel and half a grain of opium directed to be given every half hour.

At twelve a. m., he seemed disposed to sleep, vomiting and purging were checked, extremities cold, no pulsation to be felt in the arteries: his hands and feet were well rubbed with arrack.

At five p. m., he appeared better, he had kept nine pills on his stomach, hands and feet continue cold, but the pulsation of the temporal artery is now perceptible, the head and trunk of the body were covered with a warm perspiration: the pills  
were



were discontinued and a draught containing forty drops of tinc. opii. and two drams of sp. ammon. arom. ordered at seven o'clock: some tea was now given in small quantities, for he refuses wine or spirits in any shape.

August 24th 6 a. m., the patient is better, has evidently slept at intervals during the night, hands and feet continue cold, but the trunk and upper parts of the extremities warm and moist, his pulse can now be felt at the wrist but is very feeble and indistinct, complains of extreme debility, and says that he is hungry: a small quantity of rolong congee with nutmeg was given, and easily retained; as he had no evacuation by stool, fifteen grains of rhubarb and the same quantity of magnesia was given in peppermint water.

9 a. m., he continues better, has had two evacuations of a feculent smell and tinged with bile: pills containing 2 grains of calomel and half a grain of opium directed to be taken every two hours.

12 a. m., he has taken some broth and appears improving in all respects, his extremities have regained some degree of heat, the pulsation at the wrist can be felt, is free from all pain.

I was called to him at five p. m., the purging  
had

had returned with violence, and he complained of difficulty of breathing; an opiate clyster was administered, and a cordial draught given; this was swallowed with difficulty. He died in a few minutes. I was very desirous to open the body of this man; the unfavorable change that occurred about five o'clock being unexpected, for his symptoms were all those which I had observed to take place progressively in those cases of the disease where the result was favourable.

Case 2d. Linoo was admitted into the hospital on the 23d August at 10 a. m. He had been attacked with purging on the 22d. at 12 p. m., succeeded by vomiting, spasms and coldness of the body; his evacuations were frequent, of a dirty brown colour, his extremities cold, pulse at the wrist regular but feeble, spasms of the extremities and abdominal muscles violent, tongue white, cold and furred; he complains also of violent pain in the stomach; the usual dose of calomel and laudanum had been administered and rejected before I saw him. I directed him to be put into the hot bath, and bled him, sixteen ounces were procured with some difficulty, when he fainted, but was recovered by the usual means, the bath had diffused temporary warmth over his body, but the pulse could no longer be felt at the wrist, I counted seventy pulsations in the temporal artery in



a minute, they were feeble : 20 grains of calomel, and sixty drops of laudanum were again given and retained.

1 p. m., The vomiting and purging had ceased, but the extremities have again become cold, no pulsation can now be felt in the temporal artery, complains greatly of oppression in breathing, spasms have abated: he was again put into the bath; and pills, each containing 2 grains calomel and tinc. of opium, directed to be given every hour.

6 p. m., He thinks himself better, but his features are sunk, and extremities cold and shrivelled: an opiate draught and hot arrack and congee with spice and sugar ordered; and the whole body to be well rubbed.

24th. He continues sinking, is extremely restless and uneasy: having had no evacuation by stool, ten grains of rhubarb was given in an ounce of the tincture. This produced several brown watery evacuations, but they had no appearance of bile.

10 a. m., Fifteen grains of calomel, 30 drops of tinc. opii and 15 of ol. menthæ were again given and retained.

12 p. m. Complains of tenesmus, passes small mucous stools tinged with blood: a clyster of 100 drops of laudanum and two ounces of congee injected.

6 a. m. He is now free from pain, his whole body cold, and complains of anxiety and restlessness. He died at 9 p. m. without a struggle.

Dhurme Chetoor was attacked at 9 a. m. on the 24th of August, with a purging, he began to vomit at 1 p. m. when he was brought to my house. His pulse is 75, rather small, complains of spasm in his legs, thighs and fingers, is purged and vomited every ten minutes, his extremities are not cold. The usual dose of calomel and laudanum was administered, and I opened a vein in his arm, four ounces of blood flowed quickly, when he was seized with a violent spasm, this soon went off; after twelve ounces had been taken, he fainted, but soon recovered; four more were removed, when he again fainted; the arm was tied up, and he lay down apparently exhausted. The pulse had become more feeble.

2 p. m. He is now cold, and the spasms have returned, at half past two he vomited the medicines; at three he was sent to the hospital, and put in the warm bath; on being taken out, the calomel and opiate was repeated and retained.

5 p. m. The purging and vomiting have ceased, hands and feet cold, he has spasms in the abdominal muscles, pulse feeble, tongue white, furred, and cold: pills containing 2 grains of calomel



mel and half a grain of opium directed to be given every hour, and an opiate draught at night.

25th 6 a. m. He is now free from pain, but complains of slight spasms in his thighs, his pulse can be felt at the wrist, but is very feeble; hands and feet cold: the calomel & opium to be continued, and the whole body well rubbed with arrack.

12 a. m. He is now free from pain or spasms, but the extremities are cold and pulse very feeble: small quantities of congee and arrack frequently given.

5 p. m. He is not so well; there is great languor and encreased debility as well as coldness. I ordered him to be put in the hot bath and a cordial draught with 40 drops of laudanum to be given, the pills to be continued.

26th 6 a. m. He has slept during the night, and is better in all respects, hands and feet warm, pulse 75, feeble, his gums are affected with the mercury: a scruple of rhubarb was given in peppermint water, and the pills discontinued.

12 a. m. He continued better; he had several evacuations, the first watery, the last black and slimy: pills containing 2 grains of calomel and the same quantity of rhubarb to be taken every hour.

6 p. m. His stools are now more natural and of

a deep yellow colour he is improved in all respects: an opiate ordered at eight o'clock.

27th. He is now convalescent.

I think these cases show that blood letting is not to be relied on for the cure of this epidemic. In the first case, so small a quantity of blood could be obtained, that no fair inferences can be drawn; but I may here be allowed to observe, that nearly three fourths of the cases that have lately occurred, would probably afford the same results.

In the 2d case the disease had probably too far advanced to be checked by any remedy, but here, no favourable changes, such as return of warmth, rising of the pulse, or suspension of the spasms were produced by bleeding.

In the 3d case, no advantages accrued. Though blood was drawn *ad deliquium*, the pulse became more feeble, the extremities gained no warmth, nor was the violence of the spasms mitigated, while the patient certainly suffered from debility. I had an opportunity of contrasting this case with that of Sumboo Savoojee who was attacked on the same day; this man was not bled, his symptoms exactly resembled those of the other: he also vomited the first dose of calomel, which was not retained till he had been put into the bath, and he was discharged convalescent on the evening of the 25th, the day following.



I wish to observe that I have always dated the commencement of the disease from the first time the patient was purged, for this was the first marked symptom in all the cases that were admitted in August: the next was vomiting, at intervals, varying from two to eight hours, and this symptom was quickly followed by cramps and spasm, which in the worst cases were of very short duration, and succeeded by atony, and death.

The result of my experience in this disease is, that previous to, or during the existence of the spasms, the following mode of treatment will be attended with success: the stomach and bowels should be first quieted with an opiate, and the spasms allayed by the use of the warm bath, large doses of calomel and opium followed speedily up, with smaller quantities in repeated doses, will excite the suspended secretion in the abdominal viscera, will, above all, relieve the liver loaded with blood and bile, and thus determine speedily and powerfully to the skin, restoring gradually the lost balance of the circulation. I am of opinion that the total absence of bile which I have invariably observed (at that early period of the disease, before the cramps and vomiting appear), as well as the loaded state of the gall bladder and liver which appear on dissection, afford just grounds

grounds for supposing that a deranged state of this viscus is a predisposing cause to an attack of this epidemic: for it is very certain that an appearance of bile in the feces is the most favourable symptom towards recovery.

In the more advanced periods of this disease, when the pulse cannot be felt, the body universally cold, when the spasms have subsided, and atony prevails, the chances are of course greatly against the recovery of the patient; but several of these apparently desperate cases have come round, by adding to the above mentioned treatment the most powerful stimuli externally and internally.

I could adduce many facts in support of my opinion that this epidemic is not propagated by contagion, but will content myself with the following. Three convalescent wounded sepoys and a follower have been in the hospital appropriated for the reception of patients suffering from the disease, they always slept in the hospital surrounded by the sick, and not one of them has been attacked up to this day, and the disease broke out on the 21st July.



## No. 35.

*Copy of a letter from Mr. Assistant Surgeon Anderson to Dr. Milne.*

Poonah, 14th August 1818.

To

JOHN MILNE M. D. Esq.

*Act. Sup. Surgeon,*

D E C C A N.

DEAR SIR,

I have been visiting the hospitals in the city for the reception of patients labouring under the prevailing epidemic during the last week, and now beg to offer my observations on the subject. It is unnecessary to trouble you with a repetition of the symptoms of a disease so well known and so often described as the cholera morbus, suffice it to say, that it exactly agrees with the description of Celsus, and the history given by Sydenham of a similar epidemic which prevailed in England in 1669. There is indeed a variation in the symptoms, as they do not all appear in every case, and in some they are much milder than in others. It would seem also, that the disease has hitherto been less virulent here, than it is described to have been at other stations. With regard to the cause, we ought at once to acknowledge our ignorance. It is supposed to exist in the atmosphere, from it's pervading every where so extensively; but how comes it to spread in opposition to a  
continued

continued current of air like the S. W. monsoon. The idea that it is of a contagious nature is entertained by so few, and with so little reason, that it scarce merits notice.

The disease is spasmodic, and it's unknown and imperceptible cause appears primarily to affect the nervous system of the parvagum which supplies those organs whose action is independent of volition, viz. the organs of digestion, circulation and secretion. It is true the muscles of the limbs &c. are often affected with spasms, but this is to be considered as a secondary affection, it has seldom been the case among the patients I have seen, and many have proceeded to a fatal termination without these spasms having occurred.

I consider the principal cause of death to be the affection of the heart, through which the circulation is obstructed, impeded, and at last ceases. This affection of the heart is probably a spasmodic contraction more or less permanent, obstructing the flow of blood thro' its cavities, and causing the venous congestion so obvious on dissection, and so well described by Mr. Whyte, which in fact seems to be the sum of all the morbid appearances.

I have found no great difficulty, in any case, in checking the vomiting and purging; and I am satisfied



tisfied that this can always be done by opium, if given with a liberal hand, repeated, and varied in formula, as circumstances require. In general, calomel in a large dose was given with the laudanum; but I am convinced that the principal benefit is derived from the anodyne, altho' the calomel has hitherto received the greatest credit. In a recent case, when the vomiting and purging are checked, we may consider the patient safe; and all that is necessary is to administer some laxative. Numerous cases, however, do not apply for relief till the body has become cold, no pulse is to be felt at the wrist, nor even a thrill of the heart is perceptible. In this deplorable case, nothing but the most assiduous, constant, and unremitting exertion, will prove successful in exciting the motion of the heart, and renewing the circulation of the blood. The most powerful stimuli are called for; alcohol, ammonia, camphor, hot fomentations and frictions; but above all, strong sinapisms to the stomach, are, I think, the most useful. One man I saw to day, who was rescued from the state above described, by his friend applying the actual cautery on the scrobiculus cordis. Nothing, I think, would have so powerful an effect to renew the action of the heart as galvanism; I am sorry I have it not in my power to try it, for want of an apparatus.

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In the cases that I have seen prove fatal, the cause of death has uniformly been this obstruction of circulation. Bleeding might relieve it, as it removes the mechanical weight and pressure of the mass of blood, but in the cases which I saw prove fatal, it would have been difficult to procure any quantity by the usual means of venesection, as there seemed to be no blood in the veins of the extremities, so that it would be necessary to open the jugular.

I have not seen any indication for bleeding in the early stages, and all the cases that applied early, have been cured without bleeding. I should think the benefits, said to be derived from that practice, must be from it's acting chiefly as an antispasmodic.

I bled only one patient in the early stage, in whom there was a good deal of febrile heat and a sharp thready pulse; this man received relief during the operation, and recovered.

The practice all along has been peculiarly successful in these hospitals, which must be attributed to the assiduous attentions of the native servants at all hours.



## No. 36.

*Copy of a letter from Mr. Surgeon Coats to Robert Steuart Esq. President Medical Board.*

I am sorry I cannot add much to your stock of information respecting this singular and interesting epidemic, with which India is visited, as I was absent on a tour into Candeish with Mr. Elphinstone during its prevalence here, and my experience is confined to the few cases that occurred in our camp. I have however applied to the medical gentlemen attached to the auxiliary troops, for the result of their observations and practice, which has been considerable, and which I shall have great pleasure in sending you as soon as I receive it. Our escort consisted of 4 companies of sepoy, and about 50 irregular horse, but several native gentlemen with their followers accompanied us, which increased our party to about 1,200 persons.

We left Poona towards the end of June, and after halting about 10 days at Ahmednugur which we found quite healthy, we arrived at Toka on the 13th of July. During this part of our journey the wind blew an almost constant gale from the westward, and beyond a shower or two, no rain fell. The thermometer in our tents was generally about 83° or 84°, at noon;

78° or 79° in the evening and morning. We were visited at Toka by a gentleman from Aurungabad, who brought us accounts of the epidemic raging in that city, that the idea was, that it had been brought from Jaulna, where it now also raged, and that its progress through the villages on the post road from Nagpore to that station, could be distinctly traced. The practice followed in the treatment of this disease at Aurangabad, was that recommended by Mr. Corbyn, and had been particularly successful; indeed if the patient applied in time, it was considered infallible. We arrived in Colonel M'Dowall's camp, a march beyond the Casserborra ghaut, in Candeish, on the 19th, where the disease prevailed, and the gentlemen generally believed that it had been introduced amongst them from Jaulna, with which place, they had a constant communication. It did not appear that the disease existed in any of the villages in the neighbourhood. Four out of five Europeans attacked, had died; and about 12 natives; but a large proportion of natives had recovered. Mr. Corbyn's practice was fully tried on the Europeans, and in the opinion of the gentlemen who adopted it, it rather seemed to aggravate than do good. I do not recollect whether the patients were bled, but I think not. We were pitched in the centre of Colonel McDowall's camp, and staid

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one day; exclusive of that of our arrival, and our people and his must have mixed with each other. The day after leaving Colonel McDowall's camp, one of our sepoy was attacked on the march with the usual symptoms of the epidemic; he was in the rear, and I did not see him till we came to our ground, but the native assistant gave him a dose of 50 drops of laudanum, and put him into a dooly. When I saw him, his extremities were cold, his pulse was scarcely to be felt at the wrist, his countenance had the peculiar appearance so expressive of the disease, and although he did not complain much, he was very restless and rolled about in his bed. I gave him 20 grains of calomel and 50 drops of laudanum with peppermint, and ordered him warm fomentations and frictions, and warm congee. Although he now became quite quiet, he did not sleep, and the pulse did not improve for several hours. It at length began to recover, when a dose of castor oil and laudanum was given, which operated well, and removed the danger. It was several days before he recovered his strength. We continued our journey through Candish by Mullygom, Julna, Songeer (when we halted a few days) to the Taptee, at Ropriel, and returned by Nunderbar and Bamain to Chandore, without having had any other patients, or meeting with the disease in any

of

of the villages. A few days before we left Sougeer, the epidemic had reached some villages to the eastward, but I was not able to trace by what route. It also raged in Sir John Malcolm's camp at Mow in the Nerbudda: I did not hear any account of the treatment that was pursued, but understood that the calomel and laudanum had failed in several cases. The weather during our stay in Candeish was very warm, the air had the salt, moist feel of that on the coast, the thermometer was often  $92^{\circ}$  at 3 p. m., and it seldom fell below  $80^{\circ}$ ; very little rain fell till we reached the Taptee, from whence to Chandore we had constant showers, but they were not heavy nor of long continuance. We arrived at Chandore on the 16th of August, halted the 17th and 18th, and marched on the 19th by Nassick, Akola, Narsaungaum, and Corygaum to Poona, which we reached on the 7th instant. We experienced a great change of climate on passing the ghaut at Chandore, the thermometer fell  $10^{\circ}$  and the air had the coolness and elasticity of that of Poona, instead of the moist feel of that of Candeish; we had daily showers during the remainder of our journey, and on some days the rain was heavy, and travelling became harrassing to our followers. The epidemic had reached Chandore before us, and there were a few cases in the town while we were there; but it had  
not



not been violent or excited much alarm. A communication had been kept up between this post and Colonel McDowall's camp. The day after leaving Chandore, a servant of one of the bramins of our camp was attacked in the evening, and brought to me at 3 o'clock in the morning. A dose of opium had been given him by his master, and he was not suffering much from spasms or retching. I gave him 20 grains of calomel and 40 drops of laudanum, and ordered warmth &c. A report was brought to me at daylight that he was better, and had been sent on in front on a camel. When we came to our ground, his pulse was scarcely to be felt, and his extremities were cold, another dose of medicine was given, and friction and warm fomentations were had resource to ; but notwithstanding he appeared to recover a little, he died in the evening. We arrived at Nassick on the 21st, halted on the 22d and left it on the 23d. The disease had been raging there with great violence, and it was supposed had destroyed 2 or 300 of the inhabitants. It was on the decline, but fresh cases were hourly occurring during our stay. Some of the bramins, without my making any particular inquiry on the subject, told me that the disease had been brought from Ahmednugur, by some Sebundee peons. Nassick perhaps contains 25,000 inhabitants, it is situated rather low, and  
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is sheltered from strong winds, the streets are narrow and filthy, and generally slope towards the Godavery on which the tank is built. Our troops are cantoned to the N. W. of the tank, at a distance of a few hundred yards, on an elevated, dry, and exposed spot. No case had occurred amongst them, or the followers, although they had a free communication with the town. Mr. Warner, the surgeon of the troops at Nassick, extended his service with great zeal and humanity to the inhabitants, and I understood that almost all the cases that were brought to him early, were recovered. He did not seem to place much confidence in calomel, he gave laudanum, camphorated mixture and cordials, and recommended the patient to be put into a warm room with a fire, and the thirst to be allayed by warm congee, a laxative was given as early as possible. The weather was raw and wet during our stay at Nassick, and all the bramins with their followers, and many of our own, visited houses in the town. On the 23d, the day after we left Nassick, a follower of one of the vakeels was seized with the epidemic, the next day 2 more were taken ill, and the number of cases daily increased till the 28th, from which time they gradually decreased till the 3d instant, after which we had no more taken ill. The number that had the disease amounted to



to about 32 or 33, besides which there were some anomalous cases, of these, 3 were sepoy, 1 an auxiliary horseman, 2 gentlemen's servants, 2 palanquin bearers, 1 dooly bearer and 2 jossos, the rest were beggars attendant on the vakeels. The proportion of deaths was 7. The case of one of the number has been mentioned; two died before I could see them, but had each a dose of calomel and laudanum; three had the usual remedies given to them, and one of these was bled, but they had not the benefit of warm lodging and good nursing; the other patient died on the 3d day after the attack, after I had considered him out of danger; but I attribute his death to debility, and having been overcome by a long march, rather than to the disease.

From the above facts, and others which have been related, I consider the disease infectious, but if this opinion is well founded, it ought to occasion no alarm, for it is only under some peculiarity of constitution, and that fortunately very limited, that the poison acts; about 1 in 40 in our camp was attacked, but I should think this is above the usual proportion. If the disease was occasioned merely by a distempered state of the atmosphere it would have spread over the country with some regularity, but the epidemic seems generally to have travelled in lines along the post roads,

roads, and always to have required a succession of subjects for its propagation. In Candeish where there is not sufficient population and but little intercourse between the villages, its progress was slow. At Punderpoor it made its appearance at the time of the great Jatra, and was spread at once in all directions by the pilgrims returning to their homes. The poison would seem also to have been more concentrated there from there being so many sources of production; the number of deaths in a few days were estimated at 3000, and the patients are described as having been knocked down dead, as if by lightening. We know nothing of the state of body that predisposes to the disease. Persons of all classes and both sexes, are equally liable to it. In our camps, the sepoys and our servants who were well fed and clothed, seemed to suffer less than the beggars and servants of the bramins. It has been suggested by Philo medicus, in his able letter, that deficiency of bile may be the predisposing cause, but dissection has proved that the gall bladder and its ducts, are stuffed with this, and found like the other secretions and excretions, as the urine, pus, saliva &c.; it is merely pent up by the general spasmodic affection that prevails, and is evacuated in abundance when this gives way. If I were to pretend an opinion, I should say, that the disease consisted in a peculiar state of the nervous



vous system acted on by a peculiar poison producing a deranged state of the muscles, both of voluntary and involuntary motion; but this amounts to no more than a confession of ignorance, for we know very little more of the nervous system than of this supposed invasion. The symptoms you are already well acquainted with, although there seems to have been some modifications of them at different places. The small and oppressed pulse, coldness of the extremities, and that expression of countenance denoting something pressing heavily on the energies of life, showed in every case I saw; and these symptoms were followed in every case that did well, after an interval of from 12 to 24 hours, with a feverish reaction, that is, the skin became hot, the face flushed, and the pulse quicker and rather full. The thirst and call for cold water was always urgent, the tongue in some cases was clean and florid, in others furred, and of a deadly white. The muscular system was always affected. In old men and the healthy, these affections of the muscles of voluntary motion amounted to no more than what was termed a puffing; in the young & robust, these are sometimes drawn into hard lumps attended with the most excruciating pains. The spasms of the stomach and muscles of the rectum were marked by the water being often ejected in a small

small stream, as if from a syringe. I should have pronounced that some of the cases I had were labouring under snake bites, had I not been better informed. I generally followed the practice recommended by Mr. Corbyn. In two cases, the calomel was not given, in 2 or 3 it was rejected, and not repeated, these all recovered. I thought the calomel when given with the first dose of laudanum seemed rather to increase the irritability of the stomach, and suspected its good effects are rather to be attributed to its deobstruent and laxative properties than as an antispasmodic. I think it ought to be generally administered, but in Europeans not till the patient has been freely bled, and in both Europeans and Natives, not till the irritability of the stomach has been removed by laudanum; no time is lost by this. It does not appear to me either, that there is any necessity for such large doses as 20 grains; the laudanum and opium should not be pushed further than to stop the vomiting and purging, and to allay the cramps and pains. It did not produce healthy sleep in any of my patients, although I gave it in large doses, but only a stupor and lethargy. It soon occurred to me that the small oppressed pulse could not proceed from debility, but must arise from temporary interruption of the flow of blood through the heart. I therefore early had recourse to bleeding, and with the most marked



marked good effects. The propriety of bleeding is now further manifested by Mr. White's accurate and well described dissection, and I am decidedly of opinion that it ought to be had recourse to in all Europeans and young and robust Natives ; and indeed to patients generally, unless they are very old, or very late in the disease. In many of the cases, notwithstanding the above remedies, there was a considerable struggle, and it was some time before the healthy reaction took place. In this instance, I always employed friction, warm fomentations and warm conjee; and if the patient was not to be roused, a little brandy in it, or draughts with volatile alkali. The instant the skin became warm, I gave a dose of castor oil and laudanum, which generally operated, when I considered all danger removed. Excepting in one case, there was, apparently, not much suffering ; this was a young, robust Mussulman belonging to the auxiliary horse, he was quite frantic with pain, and there seemed to be some delirium. A large dose of laudanum, and calomel produced no relief, when 30 ounces of blood was taken from him, and he was immediately relieved and fell asleep. No disease I have seen, requires more attention on the part of the physician and attendants than this, and on a faint acquaintance with it none seems more formidable, but if fairly understood, with our present experience,

rience, I do not think more than 1 in 20 would die of it, as appeared in our camp. I hope you will pardon these hurried and desultory remarks.

Believe me,

Yours very faithfully

S. COATS.

I might have mentioned that all the subjects predisposed to the disease seemed to have been attacked at the places where it has appeared within 10 or 12 days. After which there arose, at some of the stations, some anomalous and dangerous cases, some time after the epidemic had apparently ceased.

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No. 37.

*Copy of a letter from Mr. Surgeon Jukes, to  
Robert Steuart, Esq. President Medical Board.*

To

ROBERT STEUART, Esq.

PRESIDENT

*Medical Board,*

BOMBAY.

SIR,

Although I have given you almost daily reports of the progress of the prevailing epidemic (commonly, though I believe erroneously called cholera morbus) at this station, and generally, all over this  
Island,



Island and the North Concan, yet as you have expressed a wish that I should concentrate those scattered reports in the form of a letter, I have much pleasure in doing it.

The epidemic has been now so generally described and its symptoms are for the most part so well characterized, that it is unnecessary to enter into a particular detail of them. I am not aware that the disease as it has appeared here, at all differs from that disease which has now extended itself from the banks of the Ganges to the western ocean, and still seems to be extending its ravages; but it does in some instances assume an aggravated form, and attacks with so much severity, that some appear to have fallen down suddenly and died. I shall have occasion to report one or two very severe cases, which fell under my own care, and where I feel satisfied that nothing but the very prompt assistance that was offered, saved the lives of several individuals. You no doubt in your official capacity as member of the Medical board, have seen several such cases recorded, and perhaps the late prevalence of the disease in Bombay has given you opportunities of seeing them personally. By the correspondence I had kept up with some of my medical friends in the Deccan, I was informed of the progress and nature of the disease

disease as it appeared in our cantonments at Seeroor, and my friend Mr. Craw's excellent letters, established at once the basis of my practice here. It is not wholly to this however that our success is to be attributed, for the rules established by our magistrates, for the early application of the usual remedies, aided by their own zeal and industry, contributed most essentially to the success of our exertions. Before I had to combat with the disease, I was very sanguine, and thought that the early application of caloric externally and internally, while I abstracted blood largely to relieve the congestion of the internal parts, which I believed to exist, would be attended with the happiest effects, and I almost fancied might supercede even the use of calomel and opium. I soon had opportunities of applying my theory to practice, and I think that in most cases, success would attend it, when applied early. It is very true, and very fortunate, that calomel and opium in large doses cure a very large proportion of those attacked with the disease, for it would be absolutely impossible, where so many are affected, to have recourse to the hot bath and bleeding, even if they were found more successful. Some cases however do now and then occur, where notwithstanding the calomel and opium have been given early, success has not attended their use, and I am inclined to think that many lives have



have been saved by the use of the lancet, which would otherwise have terminated fatally.

Without at all adverting to the origin or immediate exciting cause of this very formidable disease, it must be quite evident to every common observer, that if the blood which now fills the vessels and warms the extremities, should from any cause be suddenly withdrawn from them, that that same blood must be still somewhere in the system; it has not been withdrawn, it is not annihilated. It is not now in the superficial veins, for they are all collapsed; the pulses at the wrist have ceased to beat, or beat very languidly; and in short, the sodden appearance of the hands and feet at once bespeaks the abstraction of the vital fluid from all those parts. It must be quite evident then that some of the internal vessels must contain a very undue proportion of blood; and dissections have proved this to be the case in the most satisfactory manner. What then, I would ask, are the inferences which such theory, and such facts oblige us to draw? surely, in the first place, to relieve the congestion of the internal vessels by copious bleeding; and in the next place, to stimulate the heart and the vital powers into action. There is nothing more immediately stimulating to the arterial system than heat, and hence the hot bath is strongly indicated,

licated, and my own practice substantiates the truth of the theory.

In some cases however, the attacks have been quite sudden, and I shall briefly relate a case or two, illustrative of this aggravated form of the disease.

A stout and apparently healthy humaul of Mr. Marriott's was suddenly attacked with the disease, and, from the accounts we received, almost immediately became insensible. It is difficult to obtain correct information, as to time, from a native, but from all I can learn, it appears that he had been attacked about two or three hours before he was brought to Mr. Marriott's house; his hands and arms and feet were then cold, he had no pulsation at the wrist, but he faintly replied to questions put to him. Mr. Marriott had him put into a hot bath immediately, and had opened a vein in the arm, which only poured out a small quantity of black blood. It was now I first saw him, he was in the bath, I opened other veins and divided both temporal arteries, but in vain. No blood flowed, & he died in another hour; brandy, laudanum and æther &c. were poured down his throat.

I have great pleasure in briefly relating another case, which occurred very shortly after this at Mr.

Marriott's



Marriott's house, and where the most complete success attended our exertions.

A stout healthy peon of the collector's, while cleansing his gun in the chokey, was seized with sudden giddiness, and fell down insensible; he was carried instantly to Mr. Marriott's house. He describes him to have been without pulse, and quite insensible, he had opened a vein before I arrived, which now bled very languidly; he was perfectly insensible, but there was a trifling degree of warmth yet in the extremities, and a very obscure pulsation could be just felt at the wrist. I instantly opened a vein in the other arm, and as the blood flowed from this, the vein which had ceased to bleed in the other arm began to flow afresh; finding however that the blood still flowed slowly, a third vein was opened, and it was most gratifying to see the regenerated powers, as it were, coming into action as the blood now flowed in full streams from all three veins. He was perfectly insensible when I first saw him, and a slow and oppressed breathing was carrying on; but as the blood flowed from his arms, his breathing freshened, his lungs felt relief, he could now move his eyelids, comprehended when spoken to, and though he could not articulate he made signs that he was relieved. I allowed the blood to flow till I think 40 ounces had been abstracted, when his pulse hav-

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ing become quick, and he a little restless, the arms were tied up, he was put into a hot bath for a few minutes, when a copious perspiration was produced, and he was placed between warm and dry cumblies. I confess I have my doubts whether any thing more would have been necessary to secure this man's recovery, but as it was a severe case, I did not like to trust to the bleeding and the bath alone, and he therefore took 15 grains of calomel, with about 50 drops of laudanum and a proportion of ammonia and peppermint. Three hours afterwards, the skin was warm and moist; but as he complained of some uneasiness in his stomach, although generally speaking he was quite relieved, a few more drops of laudanum and peppermint were administered.

It may perhaps be objected to this case, that it may not have been one of the prevailing epidemic, and therefore may admit of a doubt, whether bleeding is required in that disease. I believe however that most medical men who have seen much of the disease, as it has appeared on this side of India, have had too many opportunities of seeing such cases, and must have had many more reported to them by the native doctors; for my own part, I have no doubt but that this was really an attack of the prevailing epidemic under an aggravated



vated form, and that nothing but the early and copious abstraction of blood saved his life.

I could relate many other instances of a similar nature that fell under my care, where the same measures were followed, with the same success.

From what I have said above, it will naturally be inferred, that I should try the effect of blood letting and the hot bath alone. The first case of the prevailing epidemic which occurred here, however, so strikingly exemplifies the advantages of bleeding and the hot bath, after calomel and opium had been given without any apparent effect, that I will shortly detail it.

A stout healthy naig, of the detachment which escorted Trimhuckjee Dainglia, state prisoner, from the Deckun to this garrison, was the first person seized with the disease at Tannah. He was attacked about 7 a. m., and was sent to the hospital about 9 a. m., where my native assistants had already given him 12 grains of calomel and 40 drops of laudanum with peppermint. I saw him about half an hour after he had taken this dose, he still complained of great pain about the scrobiculus cordis, and generally over the whole abdomen; he was bent forward with pain, his hands & feet were cold, with strong tendency to cramps in  
his

his legs, and there was a general restlessness and anxiety about him; he had vomited some colourless fluid, his pulse was very slow and oppressed, only 45 in a minute; he had not vomited since taking the calomel and opium, but as it had not afforded him the least relief, and the dose appeared smaller than had been usually administered, I immediately gave him 5 grains more of calomel and 20 miniums of laudanum, making altogether 17 grains of calomel and 80 drops of laudanum, with a proportion of ammonia and peppermint. Hot fomentations were applied as early as possible, and I ordered a hot bath to be prepared for him. While visiting my European sick in an adjoining hospital, the bath had been prepared, and my assistants had got him into it; it was as hot as he could bear it, and when I arrived a few minutes afterwards (about 11½ a m.), the bath was then 112°. In a few minutes after being in the bath, the pain in the stomach and abdomen had left him and he felt much relieved, his pulse was now full and strong, and 110 in a minute, but *intermitting* irregularly. Notwithstanding the pain about the scrobiculus cordis had ceased, there was still a strong tendency to cramps in his leg. I bled him while in the bath to 30 ounces, the pulse no longer intermitted and the tendency to cramps was quite removed; he  
felt,



felt, he said, quite free from pain. He was now put to bed and covered with cumblies. 1 p. m., a general glow of heat upon his skin, which was moist; but as he complained of some little pain about the scrobiculus cordis, 40 drops of laudanum were repeated. 5 p. m., feels quite well; but having had no discharge from his bowels, I gave him a purging draught, which completely relieved him. This man remained in hospital for a day or two, on account of some irregularity in his bowels; his mouth became sore from the calomel he had taken, but he required only a little laxative medicine. It is worthy of remark perhaps that no relief was in this case obtained from the calomel and opium, though it had been taken two hours and a half; and he was relieved considerably, in less than 10 minutes, after he had been in the hot bath; and the tendency to cramps which still remained in his legs, as also the intermission of the pulse, was quite removed by bleeding. I cannot therefore but think that 112 degrees of caloric applied to the body, whereby the circulation was restored to the extreme vessels, was of the most essential service, and the entire relief which followed the blood letting indicates its utility in removing the tendency to spasms. It is true the disease being attacked early, might possibly have yielded to calomel and laudanum alone, in a few hours;

hours ; but the first apparent good was undoubtedly from the application of caloric.

As I am of opinion that cases illustrate facts in the clearest point of view, I cannot deny myself the pleasure of relating one case of the prevailing epidemic, which was cured in a very short time by bleeding and the hot bath alone, and as far as I know, it is the first case that has been so cured.

Colonel Boyé's hookaburdar, a middle aged man, was attacked with the disease about 2 p. m. ; he walked with great difficulty to the hospital supported by two other men, he complained of excruciating burning pain about the scrobiculus cordis, he was bent double with pain, but he had not yet vomited or purged, his pulse was small and rather frequent, and the disease appeared to be making rapid strides. I happened to be at the hospital when he arrived, a hot bath was immediately prepared, and he was placed in it without delay ; it was as hot as it could be borne, and indeed it was some little time before he could bear it to be applied to his body ; measured by a thermometer it was  $114^{\circ}$ . The bath alone relieved the pain considerably about the epigastric region, but not immediately. I opened a vein while he was yet in the bath, and the orifice being large, the blood flowed very rapidly ; I allowed it to do so, till the burning pain about



about the scrobiculus cordis had *entirely ceased*, at this time about 26 ounces of blood, had been abstracted; taking him out of the bath, he could scarcely be supported to a cot within 5 paces of it, when he fell senseless upon it. It was indeed a most complete fainting fit; he was covered with warm cumblies, and I gave him a few drops of ammonia, but it was some little time before he recovered his perfect warmth; in 5 hours, he was so perfectly recovered, that he left the hospital and went home contrary to my advice, and without my knowledge. I have seen this man repeatedly since, and he has not had the slightest return of pain.

I could give you many more cases wherein the advantages of bleeding have been very marked, but those I have detailed I think are sufficiently conclusive; and I will not multiply examples. Experience has now taught us that a very large proportion of those attacked with the disease recover by the calomel and laudanum alone, but I feel satisfied there are many aggravated cases wherein nothing but the most prompt and decided use of the lancet, could possibly save the patient; for in a little time, the extremities become so cold, and the arterial action so weak, that it is impossible to abstract blood. I have repeatedly opened the temporal

temporal arteries, with several veins in the arms, without being able to get more than a few ounces of very black blood, which could only be obtained by mechanical pressure, and this, as far as my own observations go, affords no relief. In such cases a hot bath is frequently quite unavailing, its stimulus very often fails to excite the action of the heart and arteries, no increase of circulation takes place through the extreme vessels; the vital powers, in fact, seem insensible to the action of any stimuli, and the hands and arms of such patients become heated in the bath, just as any other animal substances would do, not possessing vital powers. Such cases however are not necessarily fatal, and I have had the pleasure of witnessing several recoveries from such apparently hopeless conditions of the human system.

Although the prevailing epidemic is liable to attack people of all ages and conditions; the weak and the infirm, whether from age or poverty or other causes, seem most liable to be attacked; and when attacked, undoubtedly suffer most. Travelers and those exposed to the inclemencies of the weather, as people at work in the rice fields &c. seem to have been very liable to the disease. The vomiting and purging appear invariably to have been without bile, and I think resemble their rice

conjee



conjee more than any thing else. In some instances the disease has been attended with extreme flatulency, sometimes the head aches very much, attended with considerable giddiness, but this is by no means universal; and the pulse is extremely various, spasmodic affections of the muscles do not generally occur early, and sometimes scarcely at all, I have seen the jaw locked in one instance, for a short time; it was a female, and she recovered, after bleeding. In one or two instances, the blood drawn has had a slight buff upon it, but it is by no means general. There has been a suppression of urine in a few cases; in one where I introduced the catheter, there was no urine in the bladder: this symptom only came on a few hours before death. The Europeans have been much less liable to attacks of the disease than the natives; and considering the dissipated lives our invalids and veterans generally lead now, we have had but very few cases, and none yet fatal. Two European women have died of the disease; both of them were rather advanced in age, and had had the disease upon them for some hours before medical assistance was obtained. One of them was extremely dissipated; but my letter has already become so long that I cannot detail her case: we examined the body after death; there was no particular congestion about the liver, stomach, or intestines; the  
vessels

vessels of the pia mater were rather too turgid, but even this was not particularly to be remarked; the ventricles contained no unusual quantity of fluid, but upon cutting down through the right hemisphere of the brain, towards the basis of the skull, there was a considerable gush of serous fluid, which appeared to have been extravasated there.

A stout healthy soldier of the 89th, who was in the hospital for a contusion of the foot, was attacked with the disease during the night, apparently from sleeping in a current of air between two open windows. This man's case is interesting, but for the reasons just before stated, I cannot here relate it; he recovered, though we gave him over for some hours. Blood letting was had recourse to, but not till 7 hours after the attack, when the sunken eyes, contracted features, coldness of the extremities and constant vomiting and purging of congee like fluid, indicated the formidable progress the disease had made; powerfully stimulating injections, composed of assafoetida, tincture of castor, laudanum and salts, and a large blister over the abdomen, with brandy, æther, ammonia &c. seemed to save him.

A disease like the prevailing epidemic, which has now spread itself like a pestilence, from the Ganges almost to the Indus, and from the northern



thern parts of Bengal over the greater part of the peninsula of India, assuredly demands very particular inquiry to endeavour to ascertain its origin, and the laws which have since directed its progress. I confess myself to be quite ignorant of almost every thing that has been written upon the subject in Bengal, and indeed I, with others on this side of India have had occasion to lament that we have been so little informed on the subject. It has been a general remark, however, that the disease is not contagious; and if to the present time, medical men should continue to entertain any doubts on the subject, there must be something still very obscure and very inexplicable in the nature of the disease. Others better qualified and better informed may trace its early progress; I shall briefly here call your attention to its progress on the western side of the peninsula, and more especially as it approached our own territories.

I am informed by a very intelligent officer, who was at Jaulnah during the time that the disease made its appearance there, and who himself afterwards sustained an attack of it, that the epidemic appeared in those cantonments early in July, and immediately after the arrival of a detachment from Nagpoor, where it seems to have been prevalent a month earlier. It had got to Se-  
roor

roor I believe by the 18th of July; as yet they had had very little rain there, and I believe it was generally imagined that more seasonable weather, viz. some rain, might have a tendency to check the disease. It was hoped here that as the disease had for some months been moving gradually S. West, and borne along, as it were, by the N. E. Monsoon, that it might be checked by the violent S. W. gales which blow on our coast during that season of the year.

We were not long kept in doubts: on the 6th of August it made its appearance at Panwell, and very shortly after, we heard of its radiating north and south from that point, and it is now extending itself through the Concan.

It will not have escaped your observation that the disease travelled along the high-road from the Deckun to Panwell; and I have not yet heard of any village in the Conkan that has had the disease, but by intercourse with places already labouring under the disease. It is worthy of remark perhaps, that the first person attacked with it here on the 13th of August, was a naig belonging to a detachment which left Seroor on the 28th of July, when the disease was very general there; and several men of the detachment fell ill on the march with it, and were sent into Poona. This detachment,



detachment, which escorted the state prisoner Trimbuckjée to Tannah, came by water from Panwell, and landed at Chundnee on the evening of the 12th August. It was at Chundnee where the disease first appeared on this island. A man died there on the 15th, and from the account given me, I have no doubt it was a case of the same disease. On the 16th, however, several were affected there, and it very soon became general in Tannah.

I have had no reason to think it has been contagious here, neither myself nor any of my assistants who have been constantly amongst the sick, nor any of the hospital attendants have had the disease. It has not gone through families, when one has become affected. It is very unlike contagion too in many particulars. In general I think it has been remarked, that the greatest number of people are affected in any place during the first few days the disease has appeared there; whereas contagion would be quite the reverse. There is undoubtedly considerable obscurity, however, at present belonging to this very singular disease; and the laws by which it has lately been moving from place to place, are very unlike those of common epidemic diseases.

If the exciting cause be something in the atmosphere,

mosphere, which has had its influence from Bengal to the Deckan, how did it come down directly against the S. W. wind that has been blowing upon this coast since June? How does it happen that the winds from the ocean still spread the disease? and if it be something general in the atmosphere, why has it not hitherto made its appearance in some two distant parts of the province at the same time? Nothing of this kind has I believe been observed; it still seems to be creeping from village to village, rages for a few days, and then begins to decline.

It is generally reported that a similar disease prevailed here about 25 or 30 years ago, and that like this, it was imported from the Mahratta country; perhaps the records of the Medical Board, or of the Government, would afford some elucidation upon this very interesting subject.

In order to afford you every information in my power, I will just add, that to common observation, there has been nothing very particular in the weather. The barometer has neither been particularly high nor low. The thermometer for the last month has scarcely ranged more than from  $76^{\circ}$  to  $82^{\circ}$  and many days nearly stationary at  $78^{\circ}$  or  $79^{\circ}$ . Leslie's hygrometer according to the days, has ranged from 8 to 20: the fall of rain  
in



in August was unusually great; measured by Howard's pluviometer, we had upwards of 48 inches.

I have now only to entreat your indulgence to this report; I am fully conscious of its imperfections, more leisure and more experience would have enabled me perhaps to make it more worthy your acceptance; but if any observations I have made, can tend to throw any additional light, either upon the nature of a disease or cure, which, as far as I know, is almost unprecedented in our medical history, whether we regard it as to the ravages it has made, or the great extent of country it has now travelled over, I shall rejoice in the opportunity I have had of presenting them to you.

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No. 38.

*Copy of a letter from Dr. Taylor, to the President of the Medical Board.*

To

ROBERT STEUART, Esq.

PRESIDENT

*Medical Board.*

SIR,

The two first cases of the present prevalent disease which, I believe, were observed in Bombay, occurred

occurred on the 14th September in a narrow street or lane of the native town named Gunesa Wara, and were brought to my notice by a Brahman physician, who had heard me describe the disorder, and mention that, having raged from sometime in Bengal and Hindosthan, it was now travelling westwards in the direction of Bombay. On visiting the two persons thus reported to me, I found that they had the most decided characteristic symptoms of the disease.

The first was a woman aged about 40 years, of the Combhee cast. She had been taken ill the preceding evening, after sunset, with vomiting and purging of a whitish watery fluid, accompanied with severe pain at the pit of the stomach, and general spasms. When I saw her, the vomiting and purging had ceased for about two hours, and she complained only of what she termed gole or knots in the muscles of the legs, arms, and abdomen, and of pain at the scrobiculis cordis, which, however, was less violent than at the commencement of the attack. There was great prostration of strength, and the pulse at the wrists and temples was imperceptible. Her mouth felt excessively parched, her tongue was foul, and her desire to drink cold water was very urgent. Her extremities were quite cold, and her countenance bore a deadly appearance.



pearance. During the night she had taken some ginger and opium mixed up with honey, and frictions with warm spirits had been used, which afforded considerable relief from the pain occasioned by the spasms. I gave her 20 grains of calomel and 80 drops of laudanum, and directed fomentations to be used; but she died in an hour and a half after I saw her.

The second patient was a man who lived within two or three doors of the first. He had been ill upwards of 18 hours. At first he had only purging of a watery fluid, but 6 or 8 hours afterwards he was seized also with vomiting. He complained of violent heat at the stomach, and said that his liver was burnt and dried up. The pulse at the wrist was feeble and indistinct. The day before I saw him he had vomited two or three worms. His tongue was not foul, neither did his mouth feel parched, tho' his thirst and desire to drink cold water were excessive. He perspired profusely, and there had been considerable retention of urine from the commencement of the disease. He also, as well as the first patient, had taken ginger and opium, and used frictions with warm spirits. Calomel, and a laudanum draught, were given him, which were not retained on the stomach. I then proposed bleeding, but he would not submit

mit to it ; he also refused to take any more medicine ; a short time afterwards, however, he consented, in consequence I believe of seeing the good effects produced on some other individuals. In the interval fomentations had been used. This man at last recovered.

Aware of the desire manifested by your Board to ascertain, if possible, the manner in which the disease had originated in Bombay, I directed some enquiries on the subject ; in reply to which I was informed, that an inhabitant of Gunesa Wara, had, immediately on returning from a visit to Poona\*, four or five days before, been attacked with cholera, and died ; that on the following day, his wife, and the wife of a man who lived next door, had also been seized with the same complaint, of which they both died ; and that almost immediately afterwards, two other neighbours, an old woman and her grand-daughter, had also fallen victims to the same disease.

In this lane the disease continued to spread for five or six days following my first visit, after which it nearly subsided, and appeared only occasionally in one or two individuals.

Seven other cases occurred on the 16th n different

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\* The disease at this time raged at Pauwell.



ferent parts of the native town; but the next fatal case, which came to my knowledge, happened on the 17th: the man had been taken ill during the night, and in the morning one of my assistants was sent for, but it was too late, for the patient died in five minutes after the assistant arrived. This occurred in a pretty populous place above the jail. A considerable number of people residing in the neighbourhood were attacked immediately afterwards, and two or three of them who did not apply for medicine, died.

It broke out almost at the same instant in a place below the jail, where great numbers were taken ill in rapid succession; and several to whom medicine had been administered, tho' not at a very early period, fell victims to this formidable disorder.

At this time the disease had probably spread considerably throughout the island, for tho' only 26 cases were reported to me on the 18th, and 22 on the 19th, this may have arisen from there being only 3 or 4 assistants employed in visiting the different parts of the town; for on the 20th, when, under your orders, I obtained a large establishment of assistants, the number of reported cases amounted to no less than 109.

Its

Its progress during the next six days, as you will observe from the daily reports submitted to you, was extremely rapid. On the 25th, the cases seen by my assistants were 318, and on the 26th, 293. But from this time you will perceive that it began to abate almost as rapidly as it had commenced. On the 1st September the number in my reports was 137, on the 15th, 97, on the 1st October 75, and on the 15th, 55. It continued decreasing till the 8th Nov. on which day only 16 were contained in my reports; but the number has again increased, and for the last few days has fluctuated between 20 and 30. A day or two of hard rain seemed to increase, in a small degree, the number of cases; but in other respects I have not perceived that the disorder has been much influenced by the state of the weather.

The description of the two first cases which I saw, exhibits the most usual and general symptoms of the disease; but in the numerous cases which have fallen under my observation, a variety of other symptoms have presented themselves. Nothing indeed excites greater surprise, or perplexes the practitioner more, than the diversified symptoms of this disease. From the name of cholera morbus which has been given to it, we should have supposed that vomiting and purging, and especially of bile, were the invariable and most distressing



troubling symptoms. In a number of cases, however, there was neither vomiting nor purging, while in others there was vomiting without purging, or *vice versa*; but in none was there the smallest appearance of bile. Besides, when vomiting and purging did occur, they were, in the majority of instances, by no means frequent or severe, and were in general easily checked by calomel and laudanum. The most distressing symptoms, and those which most decidedly marked the disease, were spasms, frequently affecting every part of the body, and a twisting, piercing pain, or burning heat in the abdomen, either at the scrobiculus cordis, or around the navel. The patients also frequently complained of burning pain in the region of the liver. Except in two or three cases, however, I never found that, unless in a very slight degree, the pain in the liver or abdomen was increased by pressure. The spasms which, with a very few exceptions, were a constant concomitant in this disease, were sometimes such as to produce the utmost distress and agony, the patients tossing themselves violently in every direction, and calling out to the by-standers to lay hold of their limbs or to sit down upon them. In one case, the patient screamed out in dreadful agony that his legs and arms were breaking. These spasms were confined sometimes to the bellies of  
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the muscles, and sometimes extended throughout their whole length. They frequently affected the muscles of the chest and diaphragm so as to render breathing difficult and laborious, and to produce a sense of suffocation. In some cases, the throat was especially affected, tho' without any great degree of pain, and the patient was rendered incapable of utterance. Trismus also occurred in several instances. Some individuals were seized with general tremors, while others complained of a sensation as if their bodies were pricked with pins.

Three different forms of this disorder have been marked by several accurate observers, and I should conceive, from what has fallen under my observation, with much judgment and propriety. In the first form, the patient is attacked with slight pain in the abdomen, which gradually increases, and is succeeded by vomiting, purging, and spasms, after which coldness of the extremities, loss of pulse, and clammy sweat gradually supervene. Of this form, many cases occurred where the patients after allowing six, eight, or even ten hours to elapse without applying for medical assistance, ultimately recovered by means of calomel and laudanum, with stimulants and fomentations. Among the first cases I saw, one was of this kind. It indeed proved fatal, but as  
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it served as a salutary example of the promptitude with which the proper doses of medicine ought to be administered, it may not be improper to notice it in this place.

A stout healthy looking lad of about 15 or 16 years of age, came to me complaining of a slight uneasiness in his bowels, which he said did not amount to pain, and requesting that medicine should be given to him. Supposing it merely one of those cases which are daily met with among the natives, especially at this season of the year, I only gave him 6 grains of calomel, at the same time leaving particular instructions that, in the event of his becoming worse, I should be sent for immediately. His complaint increased in the afternoon and evening, but unluckily the person to whom my orders were directed, instead of calling me, rested satisfied with giving him 6 grains more of calomel. At 10 o'clock next day, when I went to see the other patients, this lad was dead.

In the second form of the disease, pain in the abdomen, vomiting and purging, are rapidly succeeded by great prostration of strength, extreme coldness in the extremities, and an imperceptible pulse at the wrist and temporal arteries. The eyes are yellow, fixed, and sunk; the face and breast are covered with a cold, clammy perspiration;

tion; the patient frequently lies in a state of coma, and when roused, usually makes no complaint, except perhaps of spasms in the extremities, and of feeling that he is about to expire. These symptoms occur often within an hour, or an hour and a half, after the first attack of the disease. Almost all of these cases, which came under my observation, proved fatal. In them the calomel and the large doses of laudanum, combined with the most powerful stimuli, produced no sensible effect; and when a vein or the temporal artery was opened, the blood either refused to flow at all, or only trickled down slowly in drops. I seldom had an opportunity in such cases of trying the warm bath, but in one instance where it was used, it seemed totally to fail in rousing the powers of the system, or in relieving the symptoms.

Four or five cases of this form of the disease occurred at my house. I shall only notice two of them. The first was that of a Kamati girl about 11 or 12 years of age. She was brought to me about 6 in the morning, and was said to have been taken ill three hours before. Her extremities were perfectly cold, the pulse was imperceptible, and her eyes were sunk in their orbits. As no blood could be obtained, I gave her some calomel, with a laudanum and stimulant draught. By these means she was somewhat relieved for a short



short time, but she soon again became worse. The warm bath was then used, and stimulant draughts were repeated at short intervals, but without avail. She expired in 3 or 4 hours after I first saw her.

The second case was that of a fudeer, who while attending a sacrificial festival made by his cast to avert the direful attacks of the juree muree, or fatal disease, was suddenly seized with severe pain in the abdomen, which was immediately followed by slight vomiting and purging. When brought to me within an hour and a half afterwards, he had most severe spasms, his eyes were yellow and sunk, his extremities cold, the pulse could not be felt, and he was covered with cold perspiration. Veins were opened in both arms, but scarcely any blood flowed. Calomel and laudanum were then given him, and were followed by stimulant draughts and fomentations, and applications of bottles of warm water to his extremities and abdomen; but no relief was obtained. He rapidly sunk, and died in the course of three hours from the time of his being brought to my house. I had not an opportunity of using the warm bath.

Of the third form of the disease, I have also seen several instances. The patients fall down suddenly deprived of sense, the pulse is often feeble  
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and indistinct, but sometimes rather full and strong. When he recovers a little he complains of great pain in the head and giddiness, and frequently of pain in the abdomen. Trismus occurred in two or three of these cases.

It will be sufficient to mention only one case of this description. A woman who lived close to the Bandy bazar went out about 7 o'clock in the morning to purchase some articles. While in the bazar she fell down senseless, and in that state was carried to her home. One of my assistants was immediately sent for, and he gave her an ounce of the mixture. Alarmed however at this appearance of this disease, he instantly came to inform me. When I saw her, she had recovered a little from her state of insensibility, and her pulse was good, but she had a considerable degree of trismus. I bled her to the extent of upwards of 24 ounces; and as she complained before I came away of pain in the abdomen, I ordered her a scruple of calomel, and directed that in the event of her bowels not being moved, she should have a dose of castor oil. These measures were attended with good effects, and she speedily recovered.

These different forms of the disease, however, are not to be regarded as distinct species, but merely  
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ly as varieties produced by the same cause operating on peculiar constitutions, and on persons of diversified habits and situations in life. That in many cases of the second form the patient had laboured under slight symptoms of the disease for sometime before he actually complained, is a circumstance extremely probable, and was most likely to occur amongst the poorer and more laborious classes; and accordingly it was found that, in a great many instances, the first complaint was made in the evening after the person had returned from his labour during the day. In such cases, the previous exhaustion from bodily fatigue would aggravate the disorder, and render it more rapid in its progress.

Should these details regarding the character of the disease be deemed, at the present period, tedious and unnecessary, it is hoped that some account of the medical practice adopted at this place, carried on under circumstances, as far as I know, new and peculiar, and of the success which has attended it, will be considered more novel and important. The practice, in all the reports I have seen, was conducted in hospitals, under the immediate eye of the surgeon, who had proper native assistants under him, and was amply provided with every convenience for employing with promptitude the various remedies required.

required. It was soon ascertained by your board, however, that the circumstances under which relief would be afforded to the immense population of this island, were very different, and that the prejudices of the natives would, in scarcely any instance, allow them to receive medical assistance in hospitals or places where numbers could be attended together. As the only course then left was to administer medicines at their own houses, you were compelled to employ a numerous establishment of native assistants; and in the immediate pressing urgency of the occasion, many were necessarily engaged who had not the slightest knowledge of medical practice: I have however, much pleasure in reporting to you, that such of the assistants as were placed under my orders, have been, in general, very attentive and assiduous in the discharge of their duty, and that, judging from the numerous opportunities I have had of observing their practice, they seem, from the instructions which they received, to have been enabled to distinguish the disease with a good deal of accuracy.

For their information and guidance, a general description of the disease, & of the method of cure to be observed, were translated into the Hindoosthanee, Mahratta, and Guzerattee languages, and each of them was furnished with a copy of these instructions in the language which he best understood.

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The method of cure which, after consulting with you, I ordered to be used by the native assistants, was extremely simple. They were supplied with scruple doses of calomel, and a mixture composed of laudanum, essence of peppermint, brandy, and water; each ounce of which contained 50 minims of laudanum, 10 minims of essence of peppermint, three drachms of brandy, and four drachms of water. The calomel was first given in powder on the tongue, and then washed down with an ounce of the mixture. A similar dose was ordered to be repeated in two or three hours, if the patient derived no material relief from the former; or to be repeated immediately should the first be rejected, a circumstance, however, which very seldom happened. Besides giving these medicines, the assistants were directed, in all cases where it was practicable, to use the warm bath; and when, as it generally happened, this could not be done, to endeavour to alleviate the spasms and the pain in the abdomen by fomentations with cloth wrung out of warm water, or by fomentations with warm bricks or tiles, or salt wrapped up in cloths. Frictions with warm spirits were also directed, which almost uniformly afforded great relief. The patients were ordered to be laid on a cot, underneath which, shigras filled with warm ashes were placed when it was necessary; vessels filled with warm water were also

also applied to the extremities. When by the use of these remedies the more violent symptoms were removed, but some pain or uneasiness in the abdomen still continued, and the bowels were not moved, an ounce or an ounce and a half of castor oil was given. In addition to the other stimulants already mentioned, I sometimes directed cloves and cardamoms to be taken, when the extremities were cold and the pulse feeble. Particular injunctions were given not to allow the patient to drink cold water; but to allay in some measure his urgent thirst, he was permitted sparingly the use of warm congee. The assistants were also enjoined not to suffer any one to be disturbed who felt a disposition to sleep.

As the majority of cases were seen only by the native assistants, I have judged it proper to give this account of the general plan of practice they were directed to pursue. Considering every circumstance, the success attending it has been much greater than could have been expected.

The same practice was adopted by myself, with this exception, that usually I had recourse in the first place to bleeding. The accounts I had read of the disease, and of some dissections which shewed a great congestion of blood in the abdominal and thoracic vessels, led me to conclude that bleeding, in many cases, would be  
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the most efficacious remedy. Accordingly it will be observed that I wished to try the effect of blood-letting in one of the first cases, but was prevented by the unwillingness of the patient. A day or two afterwards I was called to see a person who had been ill 18 hours, and had received from one of my assistants two doses of calomel, and two laudanum draughts. At the time I saw him, tho' his mouth was affected, he had excruciating burning pain in the abdomen, with tormenting thirst and spasms. With some difficulty I prevailed on him to submit to bleeding, and took from him at least 24 ounces. During the bleeding, the pain in the abdomen entirely ceased; and what is a little singular, on his arm being tied up, he lay down on his left side, which the people of the house said he had not been able to do before, tho' he did not complain of any uneasiness in the region of the liver. As slight spasms still continued, I ordered him to be put into the warm bath. By these means, and the exhibition afterwards of a dose of castor oil, he entirely recovered.

The next patient whom I bled, had taken calomel and the laudanum draught, which had put a stop to the vomiting and purging; but when I saw him he had most dreadful spasms, was perfectly cold, and no pulsation could be felt at the wrist or in the temporal artery. I opened veins in both  
arms,

arms, but not more than 2 or 3 ounces of blood flowed. Circumstances rendered it impossible to use the warm bath. He died in a short time afterwards.

The two next cases in which blood letting was employed, were relapses. They were both females. Calomel and laudanum had removed entirely for two or three days all the symptoms of the complaint, and at the time I saw them their mouths were affected. The first of them complained of dreadful burning pain in the abdomen, which was increased on pressure, and of much headach and thirst. The other, besides a severe twisting pain in the abdomen, accompanied with a sensation of heat, had also great thirst and spasms. In both cases the pain in the abdomen was instantly relieved by bleeding. The warm bath was used in the second case with the best effect. One or two doses of castor oil were afterwards given, and both persons recovered.

From this time, bleeding was very generally adopted in the cases which I had an opportunity of seeing: latterly also it was had recourse to by such of the assistants as had learnt to bleed, and was sometimes even urged by the patients themselves and their friends. In almost every case it relieved the pain in the abdomen, and the  
spasms;



spasms; and when the principal symptoms were great oppression at the breast, laborious breathing, and a sense of suffocation, or when the patient had trismus, or general tremors with giddiness, bleeding was the only remedy which afforded effectual relief.

When it could be obtained, the usual quantity of blood taken away was 24 ounces, and no case occurred to me of the disease after such copious bleeding (for in a native it may be called copious) proving fatal. In two or three instances, however, it was found expedient to repeat the bleeding.

But while bleeding in an early stage of the disease, and under certain circumstances, almost uniformly produced the most decided and salutary effects, it was in general unavailing in the latter stages, or in the worst forms of the disease, when the extremities were cold, the pulse could not be felt, and the eyes fixed and sunk. In such cases indeed it was impossible, as has been already observed, to procure a proper discharge of blood, which merely trickled down in small drops; and opening the temporal artery was attended with no advantage, for by this means I never obtained more than 2 or 3 ounces of blood. Under such circumstances, no pulsation could be felt in the artery, and except in one or two instances, the blood flowed out

but of it without any pulsatory motion. Almost the whole of these cases proved fatal. A few however, in which the discharge of blood, tho' small, was followed by faintness and profuse perspiration, terminated favourably.

Amongst these almost hopeless cases, I met also with a few who recovered, tho' not the smallest discharge of blood could be obtained. I shall briefly notice one of them. He was a boy of about 12 or 13 years of age, who complained of excruciating pain in the liver, with spasms; his pulse could not be felt, and his extremities were quite cold. In puncturing a vein, I had little hopes of procuring a flow of blood, tho' I expected that, as in other former cases, an ounce or two might issue by drops. I was therefore somewhat surprised to find that the incision, tho' pretty large, was not even tinged with blood, but bore the same appearance as if it had been made on a dead body. The boy was saved, however, by the free use of calomel and laudanum, with powerful stimulant draughts formed of aqua ammonia, ether, and brandy. In the three other cases the incision presented the same appearance I have mentioned. One of the patients however died.

The cases in which there was an opportunity of using the warm bath were very few, but whenever

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it was used, it proved the most powerful means of quieting the patient and relieving the spasms.

After the most violent symptoms were removed, small doses of calomel combined with opium, were sometimes given with great benefit. Jalap or castor oil were given to procure a free discharge from the bowels.

To enter upon a discussion on the nature of this disease, concerning which a variety of opinions have been expressed, would be inadmissible in a report which has already exceeded its proper limits. The uneasiness or pain in the liver which often occurs, the yellowness of the eyes, the total absence of bile in what is vomited or passed by stool during the continuance of the disorder, and the discharge of bile, frequently vitiated, which takes place after it has been subdued, may be adduced in support of the opinion which attributes the disease to some derangement in the biliary system; while the almost constant occurrence of spasms shews that the nervous system is greatly affected.

Whether the disease be contagious, or a simple epidemic produced by some peculiar state of the atmosphere, is a question which has been a good deal agitated. The course which it has pursued from one extremity of India to the other, uncheck-

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ed by different states of temperature, and by great variations of the seasons; its proceeding even against the powerful monsoon winds, and its having been traced moving along the high road from place to place, have been urged as proofs of its contagious nature. The manner in which it was found to have originated and to spread at this place, lends some probability to the same opinion. Its introduction to Bombay has been clearly traced to a person who came from the Deccan and passed thro' Panwell when the disorder was raging there; and it has been observed here, that whenever it appeared in any particular spot or family, a considerable proportion of the family, or of the neighbours, were attacked within a very short period of each other: on many occasions I have seen 3 or 4 of a family lying sick at once. In bringing forward these facts however, it may be proper at the same time to state, that of the 44 assistants employed under me, only three were seized with this complaint.

Whatever may be the origin of this disease, the most powerful predisposing causes are circumstances which induce debility. Those who have suffered most severely in Bombay are the very poorest classes who live on meagre food, undergo considerable fatigue, inhabit wretched huts, and who often, not possessed even of a cot, are obliged



to sleep on the mud floor with scarcely a cloth to spread underneath them. At the season it appeared here, cold and moisture peculiarly predisposed to its attacks. In the Kamati village which lies low, and, during the rains, is surrounded with water, and the inhabitants of which are chiefly hamals who are much exposed both day and night, the cases were the most rapid in their progress, and in proportion were attended with the greatest mortality.

Amongst the better classes many individuals have also been attacked, but a very small proportion of fatal cases have occurred where assistance was called in time.

In proportion to its number the Musselman population seems to have suffered as much as the Hindoo. In those parts of the native town which are inhabited chiefly by the lower classes of Musselmans, and of that particular description of them called Memons, the cases on different occasions were very numerous, and the mortality considerable. The diet and habitations of these Musselmans differ very little from those of Hindoos in similar situations in life.

The preceding remarks will be considered wholly applicable to the native population. With the exception of five or six instances amongst the common

mon soldiers, no European I believe has suffered from the disorder at this place.

From the first appearance of the disease at Bombay on the 14th of August, up to the present date, medicine has been administered, in the districts under my charge, to 7459 patients, out of which number there have occurred 441 deaths, being in the proportion of nearly six to a hundred. Two or three hundred cases, however, which have been attended by myself without any assistant, but of which the pressure of my occupations prevented me from keeping an exact register, are not included in the above number.

It will afford me the highest satisfaction should you consider this as a favourable result of measures which were conducted agreeably to the orders of your Board, and under its active superintendence.

JOHN TAYLOR, M. D.

*Assistant Surgeon.*

*Bombay, 16th November 1818.*



## No. 39.

*Letter from George Ogilvy, Esq. to the President of the Medical Board.*

To

ROBERT STEUART, Esq.

PRESIDENT MEDICAL BOARD,

SIR,

In compliance with your desire, I have now the pleasure to submit to you such observations as have occurred to me on the prevailing epidemic as it has appeared at this presidency.

I shall not enter into a detail of its various symptoms, as these have been repeatedly described in the numerous reports that have been already submitted to you. Different degrees of severity may, no doubt, have marked this disease at different stations, and sometimes one symptom have predominated, sometimes another, but its characteristic features appear to have been generally and essentially the same. A few desultory observations, therefore, are all I can presume to offer.

Neither the strong contrary monsoon winds then prevailing, nor the insular situation of Bombay itself appear to have had any influence in exempting it from the attack of this singular disorder ;

order; which, advancing from the eastward, made its appearance on this island about the middle of August, and soon spread with astonishing rapidity from one end of it to the other. It appears to have attained its height about the end of that month or beginning of September, when 300 or 400 cases occurred daily. After which it began to decline, at first rapidly, and subsequently it has continued to exist in a varying tho' much diminished degree.

The epidemic has been here chiefly confined to the natives, very few Europeans having been attacked by it, and of these, the higher orders seem to have been almost entirely exempted, tho' some have complained of symptoms that led to a belief that an unhealthy state of the atmosphere prevailed. I have, however, observed that the Parsees, who approach nearer to Europeans in constitution and habits of life than many of the other classes of natives, have suffered considerably. In the Fort many were attacked, and the disease was sometimes extremely rapid and formidable.

As the first symptoms of this epidemic are frequently slight, it has been remarked that the remedies employed have had the credit of curing cases of cholera that would have merely proved attacks of simple cholic or any thing else, and  
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that too favorable an opinion of the remedies had in consequence been formed. That this may have occurred now and then is not improbable, but in so far as my observations go, certainly not to any extent. In some instances, where I had an opportunity of watching the patients, I delayed giving medicine as long as I possibly could with safety, for the purpose of ascertaining whether they were actually cases of this complaint in its early stages or otherwise, and in almost every one of these I was compelled to have recourse to vigorous measures in the end. The success which has attended the measures adopted here, and the small proportion of deaths that have occurred when compared with the thousands attacked, are, I think, chiefly to be attributed to the great alarm which the disease excited on its first appearance on the island, and the consequent promptitude with which the natives applied at the numerous stations for assistance, every thing depending on *the early* administration of the remedies.

An instance of the insidious manner in which this disease not unfrequently commences, occurred in a horse-keeper of my own. While I was absent on a short visit he had been twice slightly purged, and on my return complained of a trifling  
uneasiness

uneasiness in his bowels. He appeared to have passed nothing but a little dark watery fluid perfectly destitute of bile; and on questioning him, I found that he had felt a little griping about two hours before. He looked dark round the eyes and his pulse was somewhat small; but had the epidemic not been prevalent, I doubt if I should have thought any thing of the symptoms. It was now about 10 a. m., and I gave him as soon as the medicine could be procured, 20 grains of calomel together with a dose of the mixture which is kept ready prepared at the different stations, and which contained a drachm of laudanum with some brandy and peppermint. These were retained, but did not entirely check the symptoms, he had occasional sickness and pain at the stomach, and a smaller dose with fomentations were administered about 12 o'clock. He was allowed to remain in his own hut, and now appeared to be doing well; towards evening, some fluid he had incautiously taken brought on a return of the symptoms in the most aggravated form. I found him at 11 o'clock at night, lying exhausted on his cot, with the most violent retching and purging recurring incessantly, tho' in small quantities and without any appearance of bile. He was bathed in profuse cold perspirations, his pulse was almost gone, his countenance shrunk and ghastly, burning heat and  
pain



pain at his stomach with cramps and twichings in all his limbs. I gave him immediately 4 grains of extract of opium soaked in oil of peppermint, which he fortunately retained, and I had him instantly conveyed to the hospital. The hot bath was ordered, and while getting ready, a glyster was exhibited with half an ounce of laudanum. He remained in the bath, which was as hot as it could be borne, for a full quarter of an hour, when he became languid and sleepy. He was then well dried, placed between warm cumblies, and soon fell asleep. A gentle and warm moisture broke out almost immediately afterwards; orders were given that he should not be disturbed by unnecessary interference, and he awoke in a few hours free from all immediate danger. Some days elapsed, however, before the biliary secretion was perfectly restored, and it was necessary to give him small doses of calomel occasionally, with purgatives, which, together with camphor mixture and cordials, and light nourishing diet with a small proportion of wine, gradually brought him round. Had this man been more under observation in the first instance, all the latter symptoms might have been prevented.

His wife, who was in a bad state of health at the time, and who attended him during his illness, was attacked with cholera about three weeks afterwards;

terwards; her case was not reported and she died.

I have not personally met with any well authenticated case of recovery without medicine.

The treatment which I have generally adopted with the natives when the disease is encountered in its early stages and milder form, is to give a large dose of calomel and landanum in the proportions already mentioned, with a little brandy and peppermint, which is generally retained; if not, it is repeated as soon as the stomach gets a little composed, and in the meantime hot fomentations, or the warm bath if procurable, are employed. If the patient is not decidedly better in less than two hours, or even in a much shorter period if the symptoms are urgent, the dose is repeated again, and again if necessary, either in full or diminished proportions. The spasms and irritation are allayed, the balance of the circulation restored, and the patient speedily recovers, requiring little more perhaps than a gentle cathartic or two afterwards; and in a large proportion of these cases, I have found it unnecessary to employ ether, ammonia, or any of these active stimulants. The disease appears to be cut short, the morbid chain is broken, and the cold stage in which they are more particularly required, is prevented.

I have seen the medicines given in double doses  
by



by mistake: an instance occurred to myself. I was called to a sepoy who was reported to have fallen down in a kind of fit, I found him recovering from a state of insensibility and complaining of a most excruciating pain at the stomach, with sickness, giddiness and slight spasms or twitchings in the calves of the legs and arms. His countenance was shrunk, his pulse small, and no time was to be lost. The usual medicines, which were to be found in almost every house, were administered. He was carried to the hospital with orders that the warm bath should be got ready, but nothing done until my arrival. I followed immediately afterwards with the intention of placing him in the bath and of bleeding him; the note which I had sent with him, had miscarried, and I found that the dose had been instantly repeated. This man took therefore 40 grains of calomel and upwards of 200 drops of laudanum in less than half an hour. I found him inclined to sleep; nothing more was done, and in two or three hours he was as well as ever he was in his life. The medicine seemed to have no other effect, than that of arresting the symptoms which were making rapid strides.

Altho' purging and vomiting are generally among the first evident symptoms of this disease, yet I have never found them prove the most formidable. One or other of them is not unfrequently absent,

absent, sometimes both, and they usually yield to medicine without any great difficulty even in cases which prove fatal. The name which the disease has commonly received with reference to these symptoms, would convey a very erroneous idea of it.

Pains or burning heat at the stomach, and spasms, in some degree or other, have been rarely, if ever entirely, absent in the cases which have fallen under my observation. In some, the latter have been so extremely violent as to render it requisite to have the patient held down ; in others, and much more generally, they have been confined to cramps in the limbs, sometimes severe, but very often amounting only to a kind of gnawing, or creeping sensation, so slight indeed that the patient will not mention them, unless he is questioned.

In a great majority of the cases that have come under my notice, the head has not been materially affected ; the patients have frequently retained their senses to the last, and have answered questions rationally within a few minutes of death.

In some instances however, the coma and stupor have been very great.

Although the disease is *much more* under the influence of medicine when the symptoms commence



mence with slight purging, or vomiting, and follow each other in gradual succession, yet it does not appear to me to be less certainly fatal under these circumstances *if left to itself*, than when the patient is attacked suddenly with giddiness, coldness, loss of pulse, and all the most formidable symptoms at once.

If the calomel and laudanum with the warm bath do not speedily obtain relief; if the medicines are obstinately rejected in their various forms, which is seldom the case; or if the symptoms are urgent and rapid from the commencement, I have recourse to venesection, and often with the happiest effects: but this remedy among natives, to whom my experience has been chiefly confined, is perhaps not requisite in 9 cases out of 10. This is extremely fortunate, as the lancet cannot always be had recourse to among an extensive population, where the disease has been so extremely prevalent as it has been here, even had its necessity been more generally apparent than I have found it to be.

Excruciating pain or burning at the stomach, severe spasms or affection of the head, appear to indicate the immediate use of the lancet; and in these cases I have deemed it prudent to have recourse to it without delay, and generally with  
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the most decided advantage. Where along with the spasms there is some heat of skin and quickness of pulse (as I have occasionally met with in the commencement of this disease), I have thought it preferable not to use the bath so hot as in the latter stages when the stronger stimulants are required. A moderate warmth seems at this period to relax the surface better, and proves more soothing. In some of these instances, particularly when there is much determination to the head, I have been cautious in pushing the laudanum; and indeed in all cases when the symptoms appear to give way I discontinue it as soon as possible. Other measures then become requisite: but under the general circumstances already mentioned, opiates when used with care, have proved invaluable.

The mouth becomes not unfrequently affected from the calomel that is given within the first few hours, and in all these cases the secretions afterwards appear to come round more speedily to their natural state; but I have not given the medicine with this intention in the first instance, as the patient is generally either dead, or out of danger, before it could be effected, and as the prejudices of the natives seem so much against the use of mercury, as to render it advisable to prevent this result as much as possible, from the tendency  
it



it would have in checking their ready application for relief.

When this disease is far advanced in its symptoms, altho' possibly but a very short time may have elapsed since its commencement, when the skin is cold and the pulse gone, the most active measures and unremitting exertions become requisite. The external application of heat in every convenient form, warm and stimulating frictions, large doses of calomel, hot brandy and water with spices, ether, ammonia &c., become absolutely necessary; and under these circumstances all are but too often unavailing. There is frequently at this period much oppression at the chest with great restlessness, and anguish; and these prove, not uncommonly, most distressing symptoms.

By far the most formidable symptom in this extraordinary disease, both in appearance and reality, is the remarkable coldness of the skin, depending on the diminished energy of the circulation which seems almost entirely to desert the surface. Many recover from this state by an assiduous and unremitting perseverance in the measures already mentioned; but it not unfrequently happens that every thing we can do, proves alike unavailing. The case is indeed desperate.

Dissections have shewn that there is a great  
accumulation

accumulation of blood in the large vessels and internal viscera ; they are apparently gorged and oppressed, and every measure that tends to restore the equilibrium of the circulation, one would naturally suppose must be useful. Bloodletting appears to have this tendency by removing part of the oppressing fluid, and drawing the remainder into circulation, and thereby, if I may be allowed the expression, mechanically relieving the oppressed organs, which may then, perhaps, admit of being more readily roused into action. Advantageous results may possibly be anticipated from it on other principles, but I shall not attempt to theorise.

I have tried it in this stage of the disease frequently ; it has very often happened that I could not get the blood to flow by any means whatever ; when I have succeeded in this, it has often failed, as well as all other remedies, in doing any good ; but several cases have occurred in which I have derived advantage from it even under the most discouraging appearances, and I am not aware that I have seen it do harm.

It is chiefly, however, in the early period of this disease, to meet particular symptoms when urgent, such as formerly mentioned, that I have resorted to it, and then with the most unequivocal success ; but *generally* speaking (with reference to natives) it is not requisite ; and the other remedies, when administered



nistered *in time*, overcome the disease and accomplish with safety all that can be wished for.

Internal inflammation may sometimes occur, and even gangrene, but I feel convinced, that death is but seldom to be attributed to these causes. The malady is far too rapid in its progress, and the patient is too generally overtaken before *these* local affections run so far, as in themselves to destroy life.

Unless in some few instances which may prove very suddenly fatal, or in those cases where the remedies are had recourse to so early in the disease as to arrest the further progress of the symptoms, I have always found the remarkable coldness of the surface and partial suspension of the circulation, to ensue, sooner or later; and I am induced to consider them as the most prominent features of this truly singular disease. Indeed they may generally be perceived to accompany it from its very commencement and they are sometimes exceedingly rapid in their progress.

I have seen several instances of this disease, in which, after the violent symptoms have been removed, the patient has continued in a kind of low inactive state, with a distinct, though contracted pulse, and death like coldness of the skin, the eyes yellow, and the countenance pallid. This, if not depending upon, is generally connected with a diseased

eased state of the biliary functions, which do not appear to recover from the shock they have sustained: but I have never remarked this state to have continued, where the system has happened to have been affected by the calomel.

One patient died suddenly in this way on the 3d or 4th day after he had got over the violence of the attack; and my attention was, in consequence, particularly directed to its future occurrence. I have always found it removed by calomel, in large or small doses according to circumstances, followed up by purgatives, together with camphor mixture, and perhaps the spt. ammon. aromat. with mild cordials and light nourishing diet.

In two or three cases I have observed very extraordinary convulsive motions of the extremities and head recurring at short intervals; and in two instances (both women), these were very remarkable in the muscles of the abdomen, and seemed to depend on the augmented irritation arising from worms. They were both Parsees, and in one of them, the pain & burning heat at the stomach were so excessive, as to induce me to bleed her twice, though of a weakly habit. The calomel, followed up by compound powder of jalap and castor oil, dislodged and brought away a nest of worms matted together, to the number of a dozen at least. The relief was immediate. These are common with



with the natives, and have no connection with this disease in particular, further than by aggravating or modifying some of its symptoms, and it is no unusual occurrence for the powerful medicines which are given, or even the symptoms themselves, to disturb and bring away great numbers of them.

I have seldom used blisters, excepting when the head has been particularly affected, and the patient comatose; or to remove local symptoms consequent to the disease. When the patient is seen in the *commencement*, I have found the remedies already mentioned prove very generally successful; and in the latter stages, when the pulse is gone and the patient cold, I have been induced to rely more on the hot bath, stimulants, frictions, and remedies of a more general nature. When blisters are employed, in order to ensure their acting, the best plan, perhaps, is that which has been recommended of destroying the cuticle by nitric acid, and then neutralizing it by means of salt of tartar, and afterwards applying the blister to the part.

The sooner medicine is had recourse to in this disease the greater is the chance of recovery. Its awfully rapid progress admits of no delay, and we find that calomel and opiates, the warm bath, bloodletting, frictions with stimulants, and the external application of *heat in all its various forms*, blisters, together with ether, ammonia, brandy  
and

and other powerful stimuli internally, glysters, anodyne, stimulant, and laxative, and cathartics, form the principal means of cure. The whole may become requisite in one individual case in its different stages, but all of them are not always necessary, and some of them are no doubt at times decidedly injurious. Each remedy is to a certain extent useful, and much may depend on their judicious selection and combination in the *various* cases which present themselves. Sometimes patients should not be disturbed; sometimes the remedies, particularly heat, cannot be too assiduously employed.

The continuance of this epidemic, through all the seasons of India, and the extraordinary manner in which it appears to travel, have occasioned different opinions with regard to its being of a contagious nature or otherwise. So much doubt indeed exists on this point, that it might be presumption in me to offer an opinion. Of the two native corps now here, and of which I held temporary charge during the indisposition of the medical officer attached to them, the cholera was much more prevalent in one than in the other, and in a much more aggravated form. From this circumstance, however, I can draw no positive inference that implies contagion; as the former is a newly raised corps



corps consisting chiefly of recruits, who have been more drilled, and are possessed of much fewer comforts than the old sepoys. Many of them were also destitute of sufficient clothing, and consequently suffered from being unable to change after returning exhausted from parade, and (as it was during the monsoon) not unfrequently wet also. That the corps in question was more predisposed to disease, from some particular cause or other (their local situation being the same), is very evident from the great number of cases of severe bilious remittent fever which have occurred in it, and which are certainly not infectious. Neither have any one of the hospital attendants been attacked with the epidemic, although they were in the habit of assisting the patients day & night. Hammals, it has been observed, have suffered more on this island than many of the other castes, so have fishermen; and it has been, I think, justly remarked, that fatigue, poor diet, bad clothing and exposure to cold and moisture, particularly predispose to this disease.

I have the honor to be  
&c. &c.

GEO. OGILVY,

**FINIS.**

## A P P E N D I X.

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*Copy of a letter from Frederick Corbyn, Esq, the medical officer in charge of the native field hospital with the centre division of the grand army, relative to the treatment which had been found most efficacious during the prevalence of the alarming epidemic that lately visited the army in it's course thro' the provinces subject to the presidency of Fort William.*

In compliance with your request to give you instructions for the treatment of the disease which prevails in camp, from the circumstance of your being frequently detached from the army without medical assistance, I give you a statement with much pleasure.

The symptoms are as follows : Violent vomiting and purging of watery matter, spasmodic cramp in the extremities extending to the abdominal and muscles of the chest, a collapsed countenance, the pupil and the white of the eye covered with a thick film, a suffusion of blood and turgidity of their vessels, the eye at length sinks into its socket and immediately becomes fixed.—The  
extremities



extremities now become cold, and the pulse is not to be felt, and indeed the energy and action of the heart are considerably diminished.

The first man, I saw thus affected, was treated with three grains of calomel and a quarter of a grain of opium every two hours with frequent draughts of brandy and water, and other stimulants; the man died and I opened him on the same evening.

I found the stomach partly filled with muddy water, the bowels were empty and considerably inflated with air, hardly any bile in the gall bladder, none in the biliary ducts, there was general inflammation of the bowels, liver, stomach, and lungs.

These were indications to follow a directly opposite mode of treatment. Consequently, on assuming charge of the native hospital for the reception of camp followers, and public establishments, on the 16th of this month, one hundred and ten patients were admitted with the symptoms I have described.

I immediately gave to each patient 15 grains of calomel, which I dropped on the tongue and washed it down with 60 drops of laudanum and 20 drops of peppermint in 2 ounces of water.

Before

Before I go further, it will be necessary to mention to you, that laudanum in a large dose of 60 drops is not a stimulant but a sedative, whereas laudanum from 15 drops to 20 and 30 is a stimulant, the former produces sound sleep, removes spasm and irritability, whilst the latter excites considerable uneasiness and convulsive startings.

It will appear the more remarkable to you when I also mention that the variation of a dose of calomel has the same effects.

Calomel in a dose from 5, 8, to 10 grains, excites lassitude, sickness, irritation of the bowels, and, on account of it's being a stimulant, acts as a good purgative, but calomel in a dose from 15 grains to 20 is a sedative, allays vomiting, removes spasm, sends the patient to sleep, and produces one or two motions.

You will now observe on what principle I treated my patients; not on a plan of giving powerful stimulants, but on one which at once removes the irritability and spasm, composes the stomach and the bowels, produces sleep and tranquillity of the mind, excites the secretion of the liver, and prevents the progress of inflammation.

On the second day it was indeed a consolatory sight to observe the wonderful change.

The vomiting and the purging had stopped, the  
spasms



spasms removed with general moisture on the skin, they had experienced sound sleep, and the pulse had returned to the wrist.

I now gave 30 grains of jalap which effected one or two bilious motions.—Of one hundred and ten men I only lost two, and those were decrepid aged men, in whom the vital energies were at once extinguished,—the remaining one hundred and eight I had the good fortune to see all recover.

In the treatment of Europeans, however, I should strongly recommend copious bleeding, and never less than twenty grains of calomel with 60 drops of laudanum and 20 drops of peppermint in 2 ounces of water, and, on the spasm attacking the abdomen, the application of a large blister.

Should the blister fail in drawing and the blood not flow from the veins, immersion in the warm bath will have the most beneficial effects. Should the warm bath not be procurable, warm frictions and pots of warm water thrown over the patient will produce an equally favorable result in bringing about the reaction of the circulating system.

When the purging and vomiting are incessant, as well as violent, we ought never to be alarmed in giving as far as 80 drops of laudanum with 20 drops of peppermint, and 20 grains of calomel,  
and

and injecting 40 drops of laudanum in conjee by enema.

A few hours determines the safety of the patient, therefore these few hours must not be lost in an undetermined manner and by small and useless doses.

After the first shock is over, that is, after three or four hours, if there is much spasm and irritability remaining, the dose of calomel and draught must be repeated, the patient will then fall into sound sleep and awaken nearly recovered.

The after treatment will only be to keep the bowels regularly open with calomel and jalap, and to give occasionally 60 drops of laudanum to promote sleep. It is however to be remembered, that it would be an error and do considerable harm to bleed in persons who are weak, worn down by disease, and aged.

The most urgent symptoms in this disease are violent thirst and dreadful sensations of burning heat in the bowels and pit of the stomach; the frequent & lamentable calls for cold water should never be satisfied, for I observed many unfortunate camp followers who had died in the act of drinking. I therefore gave warm conjee, and by the means of sentries, prevented any water being taken into the hospital.

Hiccough



Hiccough is not a dangerous symptom in this disease, for there was hardly a patient recovered without suffering this spasmodic irritability.

I am of opinion that unless a patient takes these remedies within 6 hours after the attack, the case is hopeless, at least I only recovered ten patients with the regular form of the disease, after a greater lapse of time; and in those the symptoms were peculiarly mild.

It is of the greatest importance to bear in mind the necessity of giving calomel in powder instead of pills, for I have known in many instances where pills were passed through the patient in the same state and form they were taken into the stomach. This point therefore is of such high importance, that, in fever, dysentery, but above all, in this complaint by which a patient is carried off in 12, at farthest 30 hours after the attack, from which circumstance it becomes necessary to affect the system immediately, otherwise if this point should be overlooked, the chief object in the operation of the medicine may be frustrated and the patient lost.

It is on this principle I recommend laudanum in preference to opium, one is directly active in it's operation, but the other has to undergo the process of dissolving, or perhaps never dissolving  
passes

passes through the system in the same state it was taken into the stomach without producing any effect whatever.

I am so convinced of what I now assert and recommend, that for these last three years I have never once used any medicine in the form of pills. And I look back to the day when I first discovered this error in practice as one great improvement in the treatment of acute diseases.

Reading over the foregoing I find I have neglected to mention the use of peppermint in co-operation with laudanum, the reason I prescribed it was, from its known good qualities in expelling air from inflated bowels and stomach, and I have always found it have that effect in the most desirable manner.

That this disease is not infectious, I am perfectly convinced. All my attendants upon the sick have escaped the disease, and I have more particularly at all hours of the day and night respired the atmosphere of a crowded hospital with impunity.

But I fancy there have been a combination of causes, perhaps one of the principal was the sudden changes of atmospherical temperature, for I never knew the thermometer vary so much as it has this season.

In



In the morning at day break it stood at  $52^{\circ}$  and at one o'clock  $96^{\circ}$ —a variation of 44 degrees in 6 hours and a half.

I must beg leave however to decline at present entering into the causes of this disease, from recent investigation and circumstances it has put on more the appearance of being epidemic, than it did on the commencement; but as I have leisure I trust I shall be able to correct any errors in this letter, which is written during the pressure of other business.

Believe me,

MY DEAR SIR,

Your's Faithfully,

(Signed) FREDERICK CORBYN,

Assistant Surgeon, in charge of the Native  
Hospital, Centre Division of the Army.

CAMP ERITCH, Nov.

26, 1817.

The following tables contain the number of cases and deaths from Cholera within the Island of Bombay which have been ascertained. The first and second columns of each month contain the cases and deaths where medicine was administered. The third column the number of deaths ascertained by the Police without medical assistance. As the numbers in the third column are formed from reports of only a particular part of the Island, they are necessarily under the actual numbers, and it is probable that one third or one fourth may be added to them.



AUGUST 1818.				SEPTEMBER.			
Days	Cases	Deaths	Police	Days	Cases	Deaths	Police
1				1	222	12	16
2				2	194	12	35
3				3	165	6	37
4				4	230	29	22
5				5	218	15	23
6				6	227	12	30
7				7	202	16	11
8				8	174	11	19
9				9	194	12	19
10				10	187	9	19
11				11	168	7	18
12				12	163	10	8
13				13	170	10	14
14				14	178	6	7
15	3	1		15	168	3	19
16	10	11		16	161	7	12
17	13	2	2	17	170	7	3
18	26	2	7	18	152	3	6
19	54	3	20	19	150	9	10
20	213	14	22	20	154	13	12
21	312	17	33	21	126	2	21
22	340	22	21	22	139	6	12
23	361	26	27	23	131	5	14
24	448	30	35	24	100	8	10
25	510	21	69	25	104	10	18
26	483	25	46	26	92	7	17
27	377	13	42	27	123	10	12
28	381	29	15	28	115	8	7
29	329	23	18	29	118	8	10
30	280	11	28	30	109	6	17
31	260	16	2				
4,400	256	409		4804	287	847	

# APPENDIX.

11

OCTOBER.				NOVEMBER			
Days	Cases	Deaths	Police	Days	Cases	Deaths	Police
1	107	7	11	1	28	0	2
2	121	10	9	2	24	0	2
3	112	5	8	3	31	0	1
4	87	5	14	4	25	1	2
5	103	4	14	5	21	1	3
6	94	11	10	6	32	1	1
7	107	7	9	7	25	0	2
8	102	9	12	8	19	0	0
9	100	5	13	9	20	4	
10	89	6	5	10	21	0	0
11	89	4	3	11	29	0	0
12	84	7	3	12	20	0	2
13	83	2	11	13	26	3	0
14	77	6	0	14	31	2	4
15	85	4	13	15	40	4	1
16	76	2	5	16	40	0	2
17	68	4	4	17	31	0	0
18	82	9		18	28	0	0
19	70	3	3	19	26	1	0
20	74	6	4	20	28	0	5
21	65	1	9	21	26	2	2
22	60	6	3	22	30	3	0
23	73	3	6	23	34	3	
24	73	3		24	33	2	
25	52	4		25	21	3	
26	59	3	2	26	25	3	0
27	40	1	1	27	26	3	
28	49	3		28	28	1	
29	43	3	3	29	32	2	
30	52	2	2	30	24	5	
31	25	1	4				
2411	146	181		824	44	29	



DECEMBER.				JANUARY 1819.			
Days	Cases	Deaths	Police	Days	Cases	Deaths	Police
1	36	4		1	29	1	5
2	26	1	1	2	21	3	4
3	22	3		3	29	2	6
4	26	2		4	33	6	5
5	29	1	2	5	40	11	2
6	25	3	5	6	38	9	10
7	25	3	2	7	35	6	12
8	23	0	7	8	44	5	3
9	27	0	2	9	30	6	5
10	18	0	1	10	21	3	8
11	14	0	3	11	32	2	4
12	22	1	2	12	27	3	4
13	23	3		13	25	6	7
14	34	1	3	14	2	4	6
15	37	5		15	30	7	9
16	27	2	4	16	34	6	13
17	23	1	1	17	30	5	2
18	32	6		18	29	2	2
19	29	0	4	19	31	6	1
20	40	5	0	20	21	3	2
21	23	3		21	29	2	2
22	25	0	3	22	31	5	0
23	28	3		23	20	1	6
24	22	1	4	24	26	2	2
25	23	2	2	25	25	0	2
26	23	1	6	26	19	0	1
27	24	3	2	27	35	3	1
28	26	3	4	28	20	2	
29	26	2	0	29	23	0	1
30	22	2	5	30	28	1	
31	26	3	9	31	26	1	
806				839			
		64	72			114	125

FEBRUARY.				FEBRUARY.			
Days	Cases	Deaths	Police	Days	Cases	Deaths	Police
1	22	1		15	21	1	
2	26	2		16	19	2	
3	22	1		17	17	2	
4	18	2		18	17	0	
5	16	1		19	18	0	
6	26	0		20	16	1	
7	23	1		21	14	0	
8	27	2		22	16	1	
9	23	0		23	16	0	
10	15	1		24	13	1	
11	17	3		25	15	1	
12	20	0		26	7	0	
13	20	2		27	16	0	
14	16	1		28	21	1	
517				27			

### ABSTRACT OF CASES.

1817.	Cases.	Deaths.	Police.
August,...	4400	256	409
September,	4804	287	478
October,...	2411	146	181
November,.	824	44	29
December,..	806	64	72

1819.

January,....	889	114	125
February,...	517	27	

14651	938	1294
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Proportion of Deaths in those cases where  
medicine was administered, 6.4 per cent.

The



The population of the Island may amount to between 200 and 220 thousand, say 210 000. The number of ascertained cases 15945, which gives the proportion of attacks of the disease for the population  $7\frac{1}{2}$  per cent.

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P. S. The disease still continues in the Island at the rate of about 10 cases daily. There are few deaths. After having disappeared for two months on the Island of Salsett, it has recently broken out; and in one of the villages alluded to in the preface, which had entirely escaped during the greatest prevalence of the disease, no less than 23 of a population of 80 have died.

*April 6th 1819.*









17.9.1976



